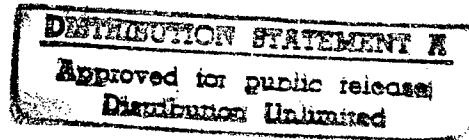


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Environmental Issues



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25 March 1993

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Baltic Sea Commission Addresses Military Pollution Problems

93WN0295A Helsinki HELSINGIN SANOMAT in Finnish
5 Feb 93 p 8

[Article by Jukka Perttu: "It Is Feared That the Army's Poisons Will End Up in the Sea in the Baltic Region. Baltic Sea Protection Commission Frets Over the Money Shortage in Helsinki"]

[Text] "Extremely dangerous poisons, which threaten to migrate to the Baltic Sea, have accumulated in the ground in areas used by the Soviet Army in the Baltic region," Tapani Kohonen, an office director in the Environmental Ministry, warned.

"Among other things, fuels, special chemicals, and solvents used for cleaning and maintenance have found their way into the ground. I would not be surprised if problem waste dumps, which are just dug somewhere and covered over, were found in the area," Kohonen reported at the meeting of the Baltic Sea Protection Commission at the Finlandia House on Thursday [4 February].

Each of the Baltic countries and the EC were represented at the meeting. In addition, a number of other organizations were present.

Billions in Assistance for the East Is Considered

"The Commission faces an enormous task in charting the poisons from the military areas. The Baltic countries do not have any documents on what the Army has dumped anywhere. In addition, one must ascertain how the polluted areas can be rehabilitated and how the work will be financed."

Poisons that have seeped into the ground from military operations are a problem in the area of the former East Germany too. According to present information, the East German load on the Baltic Sea is much larger than was stated just a few years ago.

Tapani Kohonen said that the Environmental Ministry is doing its best to determine whether it would be worthwhile for Finland to invest billions of markkas more into removing phosphorus from wastewaters in Estonia and Russia rather than into removing sulfur at home.

According to Kohonen, it could be that removing the sulfur would not be felt in the situation of Finland's coastal waters. On the other hand, phosphorus investments in the neighboring countries could clearly improve the state of the Gulf of Finland.

"At present there could be the danger that the previous planned economies exaggerated the emissions to obtain Western assistance."

Kohonen reported that the strict protective program approved by the Commission last year has really gone into gear. "For example, 40 million-47 million markkas in

Western money has been invested in accelerating Estonian environmental protection procurement."

The Commission's Funds Running Out

The Danish chairman of the Baltic Sea Protection Commission, Fleming Otzen, warned somberly that the money shortage threatens the Commission's work. The money shortage derives from Estonia's and Lithuania's difficulties in collecting funds to pay their shares. Now Latvia too has announced its desire to join the organization, but it also has bad economic problems.

There will be an attempt to solve the Commission's financial problems at a conference to be held in Gdansk, Poland in March. International financial institutions will also participate, and the purpose is to arrange resources for items in the Baltic Sea protection program.

Gas Danger Is Assessed

The meeting in Helsinki, which ended on Thursday, decided to establish a group, which would be given the task of drafting a report for the 1994 meeting about where gas weapons have sunk in the Baltic Sea and what danger they may pose for the marine environment.

The Commission made several decisions through which efforts will be made, for example, to promote the protection of nature and to restrict the stress coming from ships and land. It was decided to assist the Baltic countries, for example, in preventing oil accidents.

WWF Demands a Protection Network

The World Wildlife Federation (WWF) demanded that the Commission draft a protection plan for marine and shore areas. In October an organization of research biologists and the WWF handed over to the Commission a proposal that includes 50 valuable marine and shore areas.

Among other things the proposal contains the German Zingst-Hiddensee wetlands and the important bird wintering area in Liepaja, Lithuania.

Sources of the Sulfur and Phosphorus Load in the Baltic Sea (in percent)

Source	Sulfur	Phosphorus
Denmark	6	18
Finland	6	8
Germany	2	5
Poland	18	35
Sweden	12	10
Estonia, Latvia, Lithuania, Belarus, Russia	12	13
Sulfur taken from the air by algae	11	
Fallout coming from the air	33	11

Source: Baltic Sea Protection Commission

SOUTH AFRICA

Country Faced With Disposal of Weapons-Grade Uranium

MB2712153092 Johannesburg *SUNDAY STAR* in English
27 Dec 92 p 9

[Report by political correspondent David Breier: "The Dump of Death"]

[Text] International concern is growing at South Africa's suspected stockpile of highly-enriched uranium, lethal enough to kill millions with cancer.

The uranium was enriched at Pelindaba during the "total onslaught" era when the Government developed the capability of making nuclear bombs.

Although South Africa signed the Nuclear Non-Proliferation Treaty (NPT) last year undertaking not to make nuclear bombs, nobody knows what to do with the dump of death now that it has no military function.

Western sources told the Sunday Star they accepted that South Africa now had no possible strategic use for nuclear weapons.

But they said the real problem was that the country was lumped with the monumental headache of what to do with what is believed to be between 200 and 400 kg of weapons-grade uranium.

Bad though South Africa's problem is, it is a fraction of the headache facing Russia and the United States, which are beginning to dismantle their vast nuclear arsenals after the end of the Cold War.

The De Klerk Government signed the NPT last year, subjecting itself to International Atomic Energy Agency (IAEA) inspections which have reportedly revealed that South Africa had secretly produced several hundreds kilograms of weapons-grade uranium in the 1970s and 1980s.

The journal Nucleonics Week estimates the country has enough weapons-grade uranium to make about 25 nuclear bombs.

The journal also claimed an IAEA short-notice inspection found equipment for making "fissile cores" for nuclear bombs at an abandoned site known as Building 5,000 near the Pelindaba reactor.

The Atomic Energy Corporation [AEC] has denied that nuclear bomb-making equipment was stored at the mothballed building, but the AEC is not saying whether the country ever had a nuclear development programme.

This week the African National Congress [ANC], reacting to a growing number of international reports on South Africa's secret uranium stockpile, accused the Government of holding the people of South Africa hostage to a possible nuclear threat.

But Western sources pointed out that a possible future ANC government would have exactly the same headache as the nuclear stockpile could not simply be destroyed, shipped away or thrown into the sea, but would be lethal for centuries.

There is also growing international concern at South Africa's continued missile development programme as rockets used to launch satellites could also be used to deliver nuclear bombs. South Africa is believed to have developed missiles jointly with Israel.

TANZANIA

Toxic Waste Found in Coast Region

EA1703150693 Dar es Salaam *Radio Tanzania Network*
in Swahili 0400 GMT 17 Mar 93

[Text] Kibaha—More toxic waste was found dumped in Kibaha, Coast Region. Reports from Kibaha say the toxic waste was found dumped along the area known as (Dogo Dogo Bar). The toxic waste was found at a time when the government chief (?investigator) was continuing to investigate another consignment of toxic waste which was recently found dumped along an area designated for a department of (?the Ministry) of Education in Kibaha, Coast Region.

The registration and identity of the toxic matter dumped alongside the education department area in Kibaha show that the toxic matter was brought into the country in 1980 by an Israeli company. Three years ago another consignment of toxic waste, (DDC) type, was found in (Gikubo) village in Kibaha District.

Water Pollution Treatment Choices for 1990's

93WN0120E Beijing ZHONGGUO HUANJING BAO
[CHINA ENVIRONMENTAL NEWS] in Chinese
1 Sep 92 p 3

[Article: "Development Orientation For the Country's Water Pollution Prevention and Control Technology During the 1990's"]

[Text]

1. Priority Development and Production of Complete Process Control Technology

While conducting reform and opening to the outside world, combine readjustment of the industrial structure for economic development, development of technological transformation and updating, elimination of production technology that causes serious pollution and is technologically backward, and use of water conservation, water recycling, or water recovery technology to reduce pollutants in the production process.

2. Spread of Techniques That Effectively Reduce Total Pollutants

First is the need to do a good job of screening and evaluating the very best applied technologies. In the process of promoting these technologies for use, standards must be relaxed and concessionary policies instituted so that the maximum economic returns and environmental benefits are obtained from the effective investment of funds.

3. Emphasis on Toxic and Harmful Pollutant Treatment Techniques That Protect Water Source Lands

Because of the close relationship between sources of drinking water and human life, treatment techniques for all organic poisons that harm sources of drinking water must be placed in a prominent position. In addition to the use of physical and chemical methods to recover and pre-treat such organic poisons, a treatment process that combines anaerobic and aerobic methods should be used for the preliminary decomposition of organic poisons, and even more attention should be given to the use of new biological clean-up technology. These new technologies employ recombinant or naturally occurring bacteria to absorb pollutants. In applying this method when numerous toxins are mixed together, the problem of how to separate them before treatment as well as how to use recombinant methods to produce a new kind of bacteria or use suitable bacteria types to improve the effectiveness of the method are all technical difficulties that have to be solved.

4. All-Out Development of Applied Technology That Suits General Methods to Specific Circumstances

In guiding all jurisdictions in the choice of treatment techniques, the point of view of suiting general methods to specific circumstances and varying the method with the water to be treated should be truly used in making decisions, a comprehensive evaluation made from all angles to find the technology best suited to the local situation and that makes economic sense.

Inner Mongolia Industrial Pollution Cleanup Planned

93WN0120C Beijing ZHONGGUO HUANJING BAO
[CHINA ENVIRONMENTAL NEWS] in Chinese
3 Sep 92 p 1

[Article by Correspondents Li Shidong [0113 2639] and Weng Hao [5040 3185]: "Inner Mongolia Runs Test Program On the Collection of Environmental Compensation Fees. State Council Environmental Protection Committee On-the-Ground Official Business Meeting Seeks Ways to Solve Environmental Problems."]

[Text] The State Council Environmental Protection Committee conducted official business on site in the Inner Mongolian Autonomous Region from 27 through 31 August. State Council Deputy Secretary Xu Zhijian [1776 1807 1017] led comrades in charge from 17 ministries and commissions concerned in a penetrating on-the-ground examination of pollution. They discussed plans and policies for cleaning up pollution in the Inner Mongolian Autonomous Region, agreeing in principle that Inner Mongolia should run a test program for the collection of environmental compensation fees.

Inner Mongolia is an energy-producing province in which minority nationality communities dwell. It is an economically backward region to which a large historical debt is owing in which environmental pollution and ecological damage is fairly serious. The atmospheric pollution from coal smoke in Hohhot City, and the fluoride pollution in Baotou City, in particular, have reached the point where something must be done. The current on-the-ground work of the State Council Environmental Protection Committee in Inner Mongolia is for the purpose of solving these glaring environmental problems.

During the 5 day on-site work, Xu Zhijian, who was accompanied on the trip by Inner Mongolian Autonomous Region government deputy chairman Yun Bulong [0061 1580 7893], conducted a penetrating survey of pollution in the Urad Front Banner pastoral region, and from the Baotou Steel Mill and the Hohhot Ironworks. They conducted a full discussion of *Comprehensive Plan For Cleaning Up Glaring Environmental Pollution in Hohhot City*, *Comprehensive Plan For Cleaning Up Glaring Environmental Pollution in Baotou City*, *Comprehensive Plan For Repairing Ecological Damage in Representative Areas of the Inner Mongolian Autonomous Region*, and *Suggestions For the Collection of Environmental Compensation Fees in the Inner Mongolian Autonomous Region* about which they decided to provide assistance and support in three regards as follows: 1. a policy tilt, agreeing in principle to Inner Mongolia's running of a test program for the collection of environmental compensation fees; 2. individual ministries and commissions making concessionary arrangements and raising a portion of the funds needed for environmental pollution clean-up projects, such as for the clean-up of fluoride pollution at the Baotou Steel Mill and for the heat source construction and technical transformation projects in Huhhot. The state Environmental Protection Bureau is to give 2.9 million yuan financial assistance for the building of Inner Mongolian Environmental Protection organs themselves. 3. all ministries and

committees are to take a positive attitude in helping obtain a number of loans. The state is also to disburse some funds for use in cleaning up fluoride pollution at the Baotou Steel Mill.

The meeting also underscored the need to adhere to the principle of polluters cleaning up the pollution they cause and polluters paying fees as means of solving the environmental pollution problem. Solution to the shortage of clean-up funds will require the raising of money through many channels, at many levels, and from many quarters; however, the most important source of funds is enterprises and local governments. Priority consideration should be given to setting up scientific research projects, planning technical transformation projects, and granting low-interest loans as a means of repaying the historical debt owed to some border provinces and areas that provide energy and resources.

Xu Zhijian reiterated that solution to environmental pollution problems and repayment of the historical debt will require a spirit of reform, daring to run test programs to break new ground, and exploring new avenues. For many years, the issue of paying compensation for the pollution that the development of resources brings has not been reflected in the prices of goods. This situation must be changed gradually. Our purpose in running an experimental program for the collection of environmental compensation fees in Inner Mongolia is to provide experience and take a new road in future solution of similar situations.

Inner Mongolian Autonomous Region government deputy chairman Yun Bulong expressed satisfaction with the results of this on-site official business meeting. He expressed the view that the maximum support given Inner Mongolia through the raising of funds and the tilting of policies at a time when the country is experiencing economic hardships plays a positive role in promoting the further strengthening of the unity of nationalities, social stability, and the economic development of minority nationality areas.

Urban Radioactive Contamination Controls Tightened

93CEWN0120B Beijing ZHONGGUO HUANJING BAO
[CHINA ENVIRONMENTAL NEWS] in Chinese
6 Oct 92 p 1

[Article by Correspondent Lou Yibo [7352 2011 3134]: "Full Control of the Country's Radiation Environment. Urban Radiation Waste Storage Operation Regular"]

[Text] During the past 10 years, acting under leadership of the State Environmental Protection Bureau, control of the country's radioactive environment has been placed under the legal system, and a specialized control corps has come into being. Most cities of the country have built and put into operation radioactive waste storage facilities for full control of the radioactive environment.

Control of the radioactive environment is an important integral part of environmental control. In the operation of nuclear reactors, in using radioactive isotopes and equipment, and in the process of excavating radioactive minerals, radioactive waste gases, waste water, or waste residues may be generated. In the absence of centralized supervision and

control, nationwide radioactive contamination accidents may occur from time to time.

In order to get a handle on the level of and changes in radioactivity in urban environments, and to prevent contamination accidents resulting from the loss of radioactive materials, in 1983 the State Environmental Protection Bureau carried out two basic tasks. One was a nationwide natural environment radiation background survey, and the other was the nationwide building of urban radioactive materials storage facilities. First, sources of urban radioactive contamination and radioactive materials were brought under centralized control.

By way of carrying out further radioactive environmental control work, the State Environmental Protection Bureau drafted and promulgated a series of regulations and standards in the gradual incorporation of the eight principles of environmental protection. It promulgated *Radioactive Environmental Control Methods*, *Urban Radioactive Materials Control Methods*, and *Radiation Protection Regulations*, which scored advances in five aspects of radioactive environmental control work. First was institution of a two level examination system for evaluating environmental impact, the state level bureau examining nuclear facilities, and province level units examining the use of isotopes and associated radiation matters. Second was the storage in the urban radioactive waste storage facilities in each province of the waste materials and spent sources generated by the use of isotopes, environmental protection units being responsible for storage and control. Third was a two-track monitoring system for major nuclear facilities, both units having nuclear facilities and the environmental protection system setting up monitoring systems. Fourth was designating the nuclear accident emergency committees of local governments possessing nuclear facilities responsible for responding to nuclear accidents. Fifth was the proper handling according to law of several radioactive contamination accidents. The regular operation of radioactive waste storage in most cities permits a means of dealing with radioactive wastes, thereby removing hidden radioactive dangers. Radioactive waste control has become standardized.

Reportedly, the *Radioactive Contamination Prevention Law* is now being drafted. The State Environmental Protection Bureau is devoting close attention to associated work regarding radioactive environmental control policies, laws, and standards for routine administration of radioactive environmental control work nationwide.

Strategic Choices on Resource, Environment Issues Examined

93WN0120A Beijing ZHONGGUO HUANJING BAO
[CHINA ENVIRONMENTAL NEWS] in Chinese
13 Oct 92 p 3

[Article by Wang Yi [3769 3015]: "China's Population, Resources, and Environmental Problems and Various Strategic Choices To Be Made"] (This article is an abridgement of a speech that the author delivered in April at the first young people's academic year meeting of the Chinese Science Association.)

[Text] As a large, developing, socialist country in the process of world-class modernization, China's development prospects have captured the attention of the world, no doubt. China possesses unique basic conditions; it is unlike any other country in the world. Given its national circumstances, its particular history and actual conditions, its selection of a proper organizational mechanism for carrying out a correct, long-term development strategy that hastens the country's modernization is an important problem of extreme urgency and concern. Fulfillment of the sacred mission that history has conferred to maintain sustained socio-economic development requires, first of all, full appreciation of our own advantages and disadvantages, difficulties and potential, opportunities and challenges. It particularly requires a clear understanding of the problems to be faced in long-term development. Only in this way can we put ourselves in an unassailable position in the course of fierce international competition and protracted modernization.

This article analyzes in terms of population, resources, and the environment the difficulties to be faced in China's modernization as well as the strategic choices that will have to be made.

1. The Population Problem: A Recurring Problem That Dies Hard

Population is a factory that will limit China's modernization and development for a long time to come. China's population expansion goes beyond the stage of the country's economic development; the population will continue to grow in size; control will be difficult; and the various pressures that a huge population occasion cannot be eased for a long time to come.

2. The Successive Three High Population Peaks To Be Faced

In the wake of the beginning of its industrialization in the 1950's, China is destined to enter a stage of unprecedented manifold population increase in which the base figure, the rate of increase, and the speed of increase will be highest all around the same time. A computer simulation shows that China's population will total 1.3 billion by 2000, and that it will peak during the 2020's and 2030's at a lower limit of 1.5 billion. If planned parenthood is relaxed in the slightest, an even larger population may result. At the same time, China will experience a peak, first, in its old age population, and then in its work age population. In 2040, the over 60 year old population will top 300 million, 200 million more than today and making up approximately 20 percent of China's population at that time. This will be the total of the old age population in all developed countries at that time. Furthermore, China will become a society of old people having relatively low incomes, so taking care of them will be extraordinarily burdensome. China's 15-64 year old population will also peak in 2020 at approximately 1 billion, the actual working age population numbering between 800 and 850 million. This will create sustained employment pressure. As was said above, between 2020 and 2040, China will reach three different population peaks one after another, a situation unprecedented in China's history as well and a

rarity in the history of the world. Success or failure in population control will have a direct bearing on the future of China's modernization.

Population Employment Pressure Sustained

China's labor employment pressures are of longstanding. Increase in the working age population exceeds total population growth. Not only is the base figure for the actually employed population large, but it is growing fast. In 1952, China's labor resources totaled 267.1 million or 46.5 percent of the total population, social laborers numbering 207.29 million. By 1990, total labor resources increased to 697.32 million, social laborers numbering 567.4 million in an annual average 4.2 and 4.6 percent respective increase. However, in most developed countries, the rate of increase in the work force during the early stages of industrialization was 1 percent. It is estimated that during the 1990's, China's work force will increase at an approximately 3 percent rate. This will require finding new jobs for approximately 15 million people each year, which is more than the total work force placed during a 15 year period of high speed growth in Japan. The most conspicuous employment pressure problem in China is the enormous size of the surplus rural work force, the actual figure for which is approximately 140 million. With future increase in the rural population and a decline in the amount of cultivated land, shifting the surplus rural work force into non-agricultural industries will become a real problem in China's change to a dual economic structure, as well as in its industrialization, urbanization, and modernization.

3. Strenuous Tasks Faced in the Development of Manpower Resources

China's population problems show up not only in quantity, but are also reflected in quality. The caliber of China's population is relatively poor overall. Extrapolation of figures from China's fourth census in 1990 shows the population over 12 years of age as having only 5.5 years of education on average, less than that of a primary school graduate. Nationwide, the illiterate and the semi-literate number 180 million, or about 22 percent of the country's population over 15 years of age; and the number of the country's intellectuals, broadly defined, is estimated at approximately slightly more than 20 million, only between 2 and 2.5 percent of the population. Because of the low quality of manpower resources, the large number of illiterates and semi-illiterates, and the small percentage of intellectual workers, China has not yet fashioned either a huge reserve of human capital to promote economic development, or a main force to spur modernization. On the contrary, the population has become a weighty burden in the international competition and future development process. Therefore, any thought of transforming the population burden into a development advantage will require vigorous development of China's abundant human resources. This is crucial to vigorous national prosperity during the coming century.

2. Grim Resources Situation

Because of overpopulation, backward technology, and the shortage of capital, China's shortage of resources has become a factor limiting future development that cannot be ignored.

1. Inferiority in Per Capita Amount of Resources

China is a vast land whose natural resources rank among the world's largest. However, because of its huge population, the amount of resources per capita is small; thus, China is one of the countries of world having the least resources per capita. At a time when the country is just beginning to enter a period of modern economic growth, the insufficient per capita amount of resources puts us at a marked disadvantage. China's per capita amount of major resources is less than one-half to one-third the world average. In particular, it has insufficient amounts of some resources that are crucial to modernization, which will seriously restrict national economic development. Examples include cultivated land and water resources, which are respectively only one-third and one-fourth the world average. Per capita amounts of mineral resources amount to less than one-half the world average, and per capita energy consumption is 40 percent of the world average. The per capita amount of resources is an important indicator of the disparity between population and resources. China's low per capita amount of major resources—a problem that is difficult to eradicate through the economies of technology—shows the excessive pressure that the country's population exerts on resources, resources constituting an excessive burden for a long time to come. It will also directly restrict per capita production and consumption to the detriment of the country's long-term development potential and choices of development methods.

2. Burdens of a Large Country That Has Resources

China is a large country with resources that holds substantial long-term advantages and potential for overall development. It enjoys numerous favorable circumstances that resources-poor countries cannot enjoy; nevertheless, large size causes its own share of difficulties. First of all, a large country has to depend on the development of its own resources to accumulate capital, and this development requires large amounts of capital and a continuous prospecting and development process, as well as the building of infrastructure on a large scale. For a large developing country, this is, without doubt, an extremely heavy burden. Moreover, unfavorable terrain increases the difficulty of exploiting resources and increases costs, making it very difficult to transform advantages in many resources into material capital with a short period of time. For China, this may be a process that consumes large amounts of manpower, material, and financial resources, and that is not highly efficient causing a loss of precious development time and opportunities. Second, China has a vast land area, but relatively little cultivated land. Mountains, plateaus, and hills take up two-thirds of the total land area; transportation is not readily available; resources are spread all over and extremely unevenly; and regional differences are marked making unified administration very difficult. For examples, most of China's grain-shipping provinces are in the Chang

Jiang basin while coal is concentrated in Shanxi, Shaanxi, and Inner Mongolia; petroleum is found mostly in the three northern areas, and iron ore is concentrated in Liaoning, Hebei, Shanxi, and Sichuan provinces. For a long time, more than 80 percent of the country's freight transportation has been committed to hauling essential resources and products. This situation is the main reason for the general shortage of transportation capacity in China, and the high proportion of capital [intensive] industries. Third, since China is substantially self-sufficient in resources, it has built a fairly complete and independent industrial system. However, following the opening to the outside world, in a climate of international economic change and high speed development of science and technology, how to use foreign resources, capital, technology and management experience effectively to hasten our own development will be major problems for China in the future.

3. Increasingly Sharp Conflict Between Resources Supply and Demand

With the sustained increase in the country's population, the rapid growth of the size of the economy, and the steady rise in per capita income, the greater demand for than supply of resources will become increasingly grim in China. This will be manifested in further decline in the amount of resources per capita, including a decline in the per capita amount of cultivated land from the present 1.7 mu to 1.1 mu in 2020. Second is an inadequate supply of reserve resources. It is estimated that at the present level of proven reserves, China will be unable to meet demand for approximately one half of 45 major minerals by the end of the present century. Third is steady increase in the kinds and amounts of imported farm and forestry products, mineral products, and associated raw and processed materials. Fourth, as per capita income makes a transition from a low to an intermediate level, the amount of per capita consumption demand for resources will inevitably expand, demand for grain, energy, processed steel, and construction materials increasing enormously. Fifth, China is currently in a period of high-speed economic growth. The national economy is going through a stage of more intense use of resources and energy during which resources and energy will continue to be used intensively. Total demand for energy and resources will increase rapidly.

The occurrence at the same time of all of these events pertaining to resources has already resulted in a lack of elasticity in the modernization of materials, by which is meant that unless we look at the problems in long-range terms and remedy them promptly, China's resources will be unable to support sustained high-speed socio-economic development.

3. Environmental Problems Prospects Worrisome

In the course of their industrialization, every country of the world has gone through a process of "pollute first and clean up later" in making a choice between the environment and development. China's environmental problems are also an extension of this practice, and they will be difficult to solve quickly.

1. Dual Pressures of Ecological Damage and Environmental Pollution

China is a classic example of a large low income country having a dual structure. Moving ahead intensively with industrialization while retaining backward rural villages in which traditional production methods are widespread has resulted in ecological damage on a large scale and serious environmental pollution during the initial stage of development. Of all the ecological damage, soil erosion is the most egregious. Erosion in China now covers 1.6 million square kilometers, or one-sixth of the country's land area, and desertification proceeds at 2,100 square kilometers per year. Sustained intensive development of the land has caused a decline in soil fertility in many areas and a lowering of the organic content of the soil. In addition, despite the increase in the forest cover rate, forest reserves have fallen, the area of timber forests declining. An extensive form of management causes a 20 million mu per year regression in the the country's grasslands area. Plunder-style exploitation of mineral resources has seriously damaged the ecosystem. All these things have produced an overall trend toward worsening of the ecological environment. With the high speed growth of China's economy, the environment also faces enormous pressures from further pollution. In 1990, 65 of the 94 urban sections of river basins evaluated showed varying degrees of pollution, pollution of the water environment increasing the shortage of water. Because coal is China's main energy source, easing the trend toward atmospheric pollution in China is difficult and the acid rain area steadily widens. Solid waste contamination and urban noise are also serious. The enormous economic losses resulting from ecological damage and environmental pollution have hurt economic indicators to a marked extent. Estimates show economic losses of close to 86 billion yuan, or 7.8 percent of 1987 GNP. As survival and development pressures continue to mount, as ability and conditions for solving environmental problems decline, and because of the long-term nature of efforts to revive the ecosystem, the quality of China' ecological environment cannot be improved within a short period of time, and this may become one of China's most important crises during the coming century.

2. Increasing Frequency of Natural Disasters

China's huge population, complex geography, changeable climate, fragile ecological environment base, and the frequent natural disasters of various kind make it one of the country's in the world having the most serious natural disasters. Of all the disasters, droughts and floods have the greatest effect. Since 1949, the drought and flood area has constantly widened causing a steady increase in damage. The country's disaster-stricken area averaged 20.38 million hectares per year during the 1980's. This was 1.8 times the 1970's area and 2.2 times the 1950's area. Statistics show a between 12.5 and 20 billion kilograms per year decline in grain output from natural disasters. Natural disasters have already hurt and put a damper on sustained, steady development of the national economy, have damaged the system's ability to sustain development, and have been one of the major factors causing social unrest. A comprehensive

study of natural disasters in China shows that during the end of the present century and the beginning of the next one, China will enter a period of frequent natural disasters. It will have a swarm of natural disasters including at least one or two major droughts, major earthquakes, and major floods. These are bound to have an extremely negative, or even a disastrous, effect on the country's economic development and social tranquility. It is particularly noteworthy that major floods in middle reaches of the Chang Jiang in China's hinterland, and in the middle and lower reaches of the Huang Ho have always been a serious hidden danger for China. If we regard them lightly and fail to pay serious attention to the coordination of the social, economic, and natural systems, once a huge natural disaster occurs, the national economy will be seriously stricken.

3. Potential Threat of Global Changes

While troubled with constant domestic environmental problems, a series of global environmental problems such as warming of the climate, a rise in sea level, and destruction of the ozone layer are threatening the basic conditions on which mankind depends for survival including air, water, food, and energy. As a country having a large environment, China is not only seriously threatened by changes in the global environment, but it will also greatly effect solution to the world's environmental problems. Beginning now, we must fully evaluate the impact of a rise in sea level on the economy of China's developed coastal areas, as well as the detrimental effect of climate warming on the nation's agriculture, giving serious attention particularly to the discharge of carbon dioxide, the production of fluorocarbons and and the migration of acid rain. We must make a full assessment that takes all factors into account; otherwise, we will find ourselves in a vulnerable position in the future global environmental struggle. Conversely, we will hurt solution to our country's economic development and environmental problems.

In short, for China, which has the harshest ecological environment in its history, and which has the largest population possessing the greatest mobility in history, the above-mentioned pressures are nearing the limits of natural system balance. This adversely affects the foundation and conditions for survival of the present generation as well as of posterity, thereby decreasing China's long-term, sustained development capabilities.

4. Various Strategic Choices For Future Development

In considering China's population, resources, and environmental problems, it is the conflict between man and nature that poses the key problems. An extension of historical and existing problems, these problems place objective limits on China's reform and development. Not only can they not be limited quickly, but they may steadily intensify, thereby posing the challenge of multiple crises for China in the future. Moreover, solution to the foregoing problems is a basic task that cannot be sidestepped in China's modernization. Thus, we must both clearly understand the long-term, daunting, and complex nature of China's reform and modernization, forsaking all unrealistic illusions, and also clearly understand that the 30 to 40 years before the three

major peaks in China's population occur will be a crucial period for the development of China's economy. Taking firm hold on this fleeting historical opportunity, maintaining a stable social and political milieu, and hastening steady economic take-off, as well as moving ahead with reform and modernization are our real choices and the trend of events. China's future offers opportunities for another take-off through reliance on science and technology and arduous struggle. The real possibility of another relapse also exists as a result of over anxiety to succeed, violation of laws, sitting back while opportunities slip away, or failure to consider how to move ahead. The room for maneuver that history and the future provides us is very narrow, the time for making readjustments is short, basic conditions are harsh, and this may be the last opportunity for development. Therefore, we must make wise choices and adopt methods favorable for sustained development, make fullest use of all advantages, constantly surmount difficulties in the process of moving ahead, and explore a distinctively Chinese road of modernization.

1. Selection of a Non-Traditional Road For Modernization

At the present time, China is in the crucial stage of transition from a sufficient food and clothing to a comfortably well-off standard of living. Faced with the country's grim realities and an external environment that offers no cause for optimism, we must select a way of organizing resources that differs from that of developed countries. This means, in fact, a non-traditional modernization pattern that not only differs from the western pattern, but also differs from the pattern of newly emerging industrialized countries and territories, and that differs even more from China's own extensive form of development of the past 40 years. The central thought in this pattern is a production system that consumes resources at a low rate, and a way of life of moderate consumption. It includes vigorous development of human resources, the building of a resources-conserving national economic system, and the protection and improvement of the ecological environment. It has as its goal increased coordination of society, the economy, and nature, and a rise in overall national power that has as its highest principle ensuring survival of the race and sustained development of the country.

2. Use of Government's Guiding Role in Modernization

Unlike the pattern of modernization of western countries at the beginning of the 20th Century, governments have generally planned the modernization of developing countries later on. China is no exception. The following circumstances made this inevitable: first, China is a huge country with a population of 1 billion. Extricating itself gradually from poverty to enter the ranks of advanced countries requires the effective coalition of all forces throughout society to serve the goal of modernization. The government must take on this task. Second, in the course of reform and development, all conflicts and elements for instability must be resolved in a coordinated way by the central government in its role as the leading body so as to reduce unnecessary upheavals, and to ensure that modernization proceeds smoothly. Finally, the organization of modern large scale production, the development of markets, and solution to

modernization difficulties, as well as entering international competition in a concerted way require that the government hold an effective leadership position throughout. For the government to play a leading role in fulfilling its modernization mission, it must take the lead in reforming itself. This must not be done at the cost of curtailing or weakening government functions, but by changing government functions, reconstructing a macro-administrative framework, and particularly building a system in which decisions are made scientifically and democratically. It entails the drafting of long-term development policies that are consistent with the country's circumstances, reducing policy mistakes and increasing administrative efficiency. In addition, the supervisory mechanism must be improved, eradicating corruption root and branch. It must be pointed out that increasing the government's guiding role does not mean getting rid of markets and restoring the old system in which command plans predominated. Instead, it means that decision making authority must be concentrated in the government, and government must do a good job of managing total amounts and key investment as well as allocating a small amount of crucial resources. Over the long run, the government's guiding role will steadily disintegrate and regenerate in new form with modernization.

3. Promotion of Full Opening to the Outside World and Reform, Handling Well the Relationship Between Reform and Development

China cannot depend solely on internal factors and conditions for the acceleration of its modernization. It must also promote multi-level all-points reform of coastal, peripheral and inland areas to hasten the pace of economic reform. With the constant pluralization and interdependence of the world, and particularly against a backdrop of regional cooperation and increasingly great sharing of resources, we must both import rational amounts of scarce resources, capital, and technology, and also readjust our ways of opening to the outside world, safeguard the national interest, abide by international practices, strengthen bilateral and multilateral cooperation, and promote the fashioning of a new international order that benefits China's interests.

We must also correctly understand the objective laws of reform and their correlation to economic development. As an integral part of China's modernization, the reform tasks is an exceptionally daunting one and one that requires payment of a price. In a nation that has a several thousand year long cultural tradition and in which 80 percent of the population lives in rural villages, drawing support from traditional forces to bring about social conformity as a means of attaining modernization is a reality that must be faced in reform. Progress in reform will be substantially subject to China's national circumstances. Reform and development are interdependent and mutually limiting. Reform serves development, but it can only create a new socio-economic operating mechanism; it cannot substitute for development. Development provides a fine climate for reform, and problems in development are ultimately solved by development.

4. Development of Science, Technology, and Education as the Main Means For Spurring Productivity

Science and technology are an important fountainhead for a country's development, and they will also be a mainstay for China's future long-term development. Science and technology play an increasingly important role in today's ever more intense international competition, and the economic growth that technical progress engenders is increasingly great. For China, use of the opportunity that the new technological revolution provides can narrow the gap with advanced countries. Science and technology offer deliverance from the dilemma of a large population dependent on scant resources. Increase in the level of technology can help us translate potential productivity into real productivity. Conservation of resources, multiple use of resources, and environmental protection technology provide major support for our realization of a non-traditional pattern. Without the development of science and technology, China's escape from backwardness to catch up with the world advanced level is unimaginable. At the same time, vigorous development of education, improvement of the caliber of all the people, and building of a huge corps of intellectuals are projects of vital and lasting importance.

Every country must choose a path of modernization that is in keeping with that country's national circumstances. No such thing exists as another country's successful pattern that can be mechanically copied. China's reform and modernization are a great cause of the Chinese people, and they are also a wondrous spectacle in the history of the world. Despite the crises and challenges from many quarters that we face in our development, the Chinese people are able to find a place for themselves among the peoples of the world. In the course of several thousand years of survival and development, they have triumphed over countless catastrophes and upheavals, have striven to improve themselves throughout, and have pursued their own course calmly and with composure. We believe that by making difficult choices that are farsighted and sagacious, and by arduous efforts made unflaggingly over a long period of time, the Chinese people will extricate themselves from difficulties and move toward a glorious resurgence.

Cleaner Coal Seen As Main Way to Protect Environment

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[Editorial by Commentator: "Advance the Coordinated Development of Energy and the Environment—Implementation of Ten Major Measures For Dealing With the Environment and Development"]

[Text] As a basic industry in China's economic development, the energy industry will always be of strategic importance. After more than 40 years of economic construction, and particularly during the past more than a decade of reform and opening to the outside world, China's energy production and construction have advanced by leaps and bounds. In 1991, China's gross output of energy amounted to 1.044 billion tons of standard coal, making China the

world's third largest energy producing country. In order to accelerate economic construction and raise the people's standard of living, China's total energy consumption and per capita energy consumption will continue to grow.

China depends mostly on coal for energy. Coal accounts for approximately 97 percent of all the country's proven energy reserves. At the present time, coal accounts for 73 percent of the country's total consumption of commodity energy, only 23 percent of which is converted into clean, convenient electrical energy. Since most coal is either directly burned or scatter burned, atmospheric pollution in China becomes worse and worse with each passing day. Pollution is particularly serious in cities where both industry and population are concentrated and much energy is consumed. Statistics show that 70 percent of the soot and 90 percent of the sulfur dioxide discharged in the country comes from the burning of coal. Inasmuch as it is very likely that coal will supply most of China's energy needs for at least the next 30 to 50 years, the development of energy is posing a grim challenge for the environment.

In order to reduce pressure on the environment from energy use, China has increased investment in environmental protection as part of work on energy. It has installed large numbers of pollution protection and control devices, and it has enhanced controls over the discharge of pollutants from the use of energy. This series of measures has played a very great role in reducing environmental pollution from energy production and consumption. Nevertheless, since the technology used in China to produce and consume energy is backward, the equipment antiquated, and the energy utilization rate low, actions that only control pollution are not enough; vigorous efforts must be made to spur technological progress, organically linking in a rational way energy use, improvement of the energy utilization rate, energy conservation, and environmental protection.

Changing the kinds of energy used is an important step in the country's energy development strategy. Improvement of the kinds of energy used requires, first, faster development of hydropower, nuclear power, and new energy sources while reducing the percentage of coal consumed. Second is concentrating efforts on reducing the amount of direct coal consumption, converting a larger amount to clear secondary energy sources such as electric power and coal gas. Efforts should be made to increase the percentage of coal used to generate electricity in China from the present 22 percent to 33 percent by the end of the present century, and to provide gas to 60 percent of urban residents. China has the largest water power resources in the world. Faster construction of large and medium size hydropower facilities, particularly construction of the Three Gorges hydroelectric power project, holds important strategic significance for changing both the make-up and the pattern of China's energy consumption. In addition, the small hydropower plants that dot the country's landscape offer great development potential. Small hydropower facilities require little investment, produce quick results, and can be built in scattered locations. They replace some of the firewood and coal consumption of rural villages, thereby effectively reducing the impact on the ecological environment. The development of nuclear power

holds an important place on the country's agenda. By the end of the present century, China will have a 6 million kilowatt installed nuclear energy capacity. Nuclear power is a clean energy source that does not discharge carbon dioxide and other pollutants; it will occupy an increasingly important position in China's future energy structure.

The gradual improvement of the country's energy structure in which coal holds the dominant position is an important task in coordinating the development of China's economy and environment. The medium and long-range economic development plans of governments in all jurisdictions should take sustained economic development and effective protection of the environment as their starting point in thinking through fully and completely their energy development plans. In accelerating the construction of hydropower and nuclear energy facilities, they must suit general methods to specific circumstances in developing and spreading clean energy sources such as solar energy, wind energy, geothermal energy, tidal energy, and bioenergy, taking more effective actions to promote their use.

Realization of the country's strategic objectives in development of the economy and society must be ensured to enable the coordinated development of energy and the environment. A policy of equal emphasis on development and conservation must be pursued, vigorous efforts made in both the conservation of energy and in raising the energy utilization rate. This is a fundamental proposition. Today a shortage of energy exists in China simultaneous with high consumption and great waste everywhere. It has been estimated that, on average, the energy utilization rate in China is only two-thirds the international level. China uses between 30 and 90 percent more energy for major industrial products than developed countries. An extremely great potential for conservation and reduced consumption exists in China.

By the end of the present century, China's electric power industry must reduce coal consumption to 370 grams of standard coal per kilowatt of electricity generated, a 60 gram reduction. This will mean the a reduction in the pollutants generated from the burning of 80 million tons of raw coal. The revamping of 400,000 industrial boilers in business enterprises is currently being carried out urgently in China in an effort to conserve 100 million tons of coal used to fire industrial boilers by the end of the present century. Other large energy users such as iron and steel, chemical, and building materials industries are also striving to reduce energy consumption per unit of product by between 10 and 20 percent within the next 10 years. Implementation of these measures and achievement of these goals will have an extremely marked effect on the environment.

Cities must actively raise capital to develop city gas and central heating plants. In building or expanding coal burning power plants, both heat and electricity are to be produced, heat producing electricity or electricity producing heat to use heat in the most effective way. Expansion of civilian use of coal briquettes could reduce soot by 60 percent. The addition of a sulfur solidifying agent can reduce sulfur dioxide emissions by 50 percent. Inasmuch as supplying heat from a central point is not very common in

China today, popularization and development of coal briquettes is the most economical and most realistic way to conserve coal, and to solve the problem of environmental pollution resulting from the scatter burning of raw coal. Governments in all jurisdictions and departments concerned should adopt policies to accelerate civilian use of briquettes in order to attain the goal of widespread use of briquettes in both cities and the countryside by the end of the present century.

In the course of their economic development and modernization, many countries of the world consumed large amounts of energy at the sacrifice of the environment. In the course of its modernization China must avoid this route to pioneer a new avenue of coordinated development of energy and the environment, thereby making a positive contribution to the protection of China's environment and the global environment.

Heilongjiang Province Environmental Pollution Detailed

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[Article by Cui Li [1508 5461] and Sun Huajiang [1327 0553 3068]: "Environmental Pollution in Heilongjiang Province and Its Damage to Human Health"]

[Text] I. Status of Pollution

1. Ground Water Pollution. Ground water monitoring data show that the ground water in major cities of Heilongjiang Province has been polluted. Briefly the situation is as follows:

The ground water in Harbin contains more than 10 harmful substances including phenol, mercury, cyanogen, arsenic, chromium, copper, zinc, and manganese. Testing for phenol shows high reading everywhere, the content generally ranging between 0.0024 and 0.59 mg/L, exceeding the standard at more than 50 percent of locations, the above-standard area covering more than 140 square kilometers. The highest test values occur in the vicinity of the Daoli region gas company where the phenol content reaches 0.71 mg/L, which is 355 times above the national standard (hereinafter abbreviated to above the standard) for drinking water. The highest reading for cyanogen generally ranges between 0.06 and 0.13 mg/L, which is between 1.2 and 2.6 times above the standard over an area of between 61 and 78 square kilometers. Chromium readings at various sites are 1.8 mg/L, 36 times above the standard. The ground water iron content is everywhere fairly high, exceeding the standard at 68 percent of locations, the above-standard area covering 140 square kilometers. In the Harbin Paint Plant's well, the total iron content is 100/L, which is 333 times above the standard.

The shallow level ground water in Qiqihar contains phenol, arsenic, mercury, cyanogen, chromium, and iron. Nitrate pollution is fairly severe, generally ranging between 0.8 and 150 mg/L for an average 58.21 mg/L, and exceeding the standard in 29.2 percent of locations. In the vicinity of sewage ditches and oxygenation ponds, phenol pollution

occurs over a wide area, exceeding the standard at 32.8 percent of locations. Maximum content reaches 0.028 mg/L, which is 14 times the standard. In some places, mineralization and total hardness show marked increase, the maximum readings being 4,314 mg/L and 1,378.2 mg/L respectively, exceeding the standard in 9.58 and 11.35 percent of locations respectively. Iron and manganese content is generally fairly high, total iron generally ranging between 3 and 15 mg/L, exceeding the standard in 91.6 percent of locations and by between 10 and 50 times, maximum iron content reaching 54 mg/L, which is 180 times the standard. Manganese content ranges generally between 0.1 and 0.2 mg/L at 87.0 percent of locations, the maximum content reaching 12.13 mg/L.

In Mudanjiang City, the underground water shows fairly high readings for nitrates, phenol, iron, and manganese. Nitrate content ranges between 0.1 and 250 mg/L at between 13.0 and 26.1 percent of locations. Iron content ranges between 0.05 and 40.0 mg/L at between 57.0 and 74.0 percent of locations, the area above the standard covering 32.4 square kilometers. Manganese content ranges between 0.02 and 8.0 mg/L at between 58 and 4.1 percent of locations. Phenol content ranges between 0.002 and 0.34 mg/L, exceeding the standard at 59.0 to 94.0 percent of locations, the area above the standard covering 42.19 square kilometers. The ammonium nitrate content ranges between 1.20 and 8.24 mg/L exceeding the standard at 60 percent of locations covering a 33 km square kilometer area.

In Jiamusi City, ground water hardness increases with each passing year, and the ground water is polluted by the "three nitrogens" [nitrates, nitrites, and ammonium nitrate], phenol, cyanogen, iron, and manganese. Data from 152 monitoring sites shows readings of 93.4, 81 and 11.0 percent respectively for nitrates, nitrites, and ammonium nitrate. Iron was found 100 percent of the time, the content ranging between 0.3 and 33 mg/L, and exceeding the standard at 95.4 percent of locations. Manganese content was less than 0.1 mg/L exceeding the standard in 8.2 percent of locations. At the sixth source of water in the urban area, phenol pollution is fairly serious, readings showing a content between 0.012 and 4.5 mg/L, which is between 6 and 2,250 times above the standard. Monitoring of 28 water wells within the city showed an average phenol content of 0.138 mg/L, which is 69 times the standard, and a maximum reading of 4.566 mg/L, which is 2,283 times the standard.

Ground water in Yichun City is partially polluted. The phenol content of residential wells in the vicinity of the Xinqing fiberboard plant and the electric power plant is 1.2 mg/L, which is 600 times above the standard. Suspended matter reaches 1,149 mg/L, and dissolved oxygen measures zero. Six wells close to the Haolang He Chemical Fertilizer Plant are polluted, the maximum ammonia content being 300 mg/L.

The ground water in other cities in Heilongjiang is also polluted to varying degrees.

2. Surface Water Pollution. Heilongjiang Province Environmental Protection Bureau surface water monitoring data

show the province's main rivers, lakes and other bodies of water to be polluted in varying degrees, particulars being as follows:

Heilong Jiang. The river's suspended matter content ranges between 23.4 and 19.4 mg/L; dissolved oxygen is only between 0.849 and 1.592 mg/L; chromaticity ranges between 94 and 125 degrees, which is between 2.8 and 4.0 times the category 3 standard for surface water (all evaluations hereinafter according to the category 3 standard). Maximum chemical oxygen demand is 7,200 mg/L, which is 1,439 times the standard. Biochemical oxygen demand is 10.64 mg/L, which is 0.77 times the standard. Volatile phenol ranges between 0.011 and 0.022 mg/L, which is between 0.1 and 0.2 times the standard.

Songhua Jiang. The chemical oxygen demand content of this river is 8.04 mg/L, 0.34 times the standard. Its biochemical oxygen demand content is 8.0 mg/L, 0.6 times the standard. Maximum mercury content is 0.0039 mg/L, 2.8 times the standard. Volatile phenol content is 0.16 mg/L, 15 times the standard. All other indices are also above the standard.

Mudan Jiang. The river's suspended matter content ranges between 1.18 and 729.82 mg/L, the maximum reading being 2,318 mg/L. The dissolved oxygen content is between 0.5 and 11.2 mg/L. The chemical oxygen demand ranges generally between 6.42 and 18.63 mg/L, which is 0.07 to 12.11 times the standard, maximum content reaching 1,558.70 mg/L, which is 258.8 times the standard. The biochemical oxygen demand ranges between 114.57 mg/L, which is 22 times the standard. The maximum volatile phenol content is 0.74 mg/L, which is 64 times the standard. The copper, arsenic, cadmium, Cr₆, lead, total nitrate, cyanide, and zinc are all above the standard to varying degrees.

Muleng He. The total suspended matter in this river is 294 times the standard. Volatile phenol content reaches 2.71 mg/L, or 270 times the standard. Total nitrogen content is 17.5 mg/L, or 16.5 times the standard. Oil content is 915 mg/L, 18 times the standard; and the intestinal bacteria content is 1.52 million per liter, or 303 times the standard.

Wusihun He. Suspended matter in this river ranges between 132.5 and 815 mg/L; chemical oxygen demand ranges between 161.85 and 1,202.34 mg/L, which is between 26 and 109.4 times the standard; biochemical oxygen demand content is 88.45 to 237.6 mg/L, which is between 16.7 and 46.5 times the standard, Cr₆ is 0.415 - 50 mg/L, which is between 8.5 and 999 times the standard; total nitrogen content is 0.29 to 16.1 mg/L, which is 15.1 times the standard and above the standard in 70 percent of locations. Total bacteria number between 10,000 and 490,000 per L, which is 8.8 times the standard at more than 50 percent of locations. In addition, the Ussuri Jiang, the Nen Jiang, Ashi He, Hulan He, Wuyuer He, and both big and little Xingkai Lake, and reservoirs and lakes in some regions have also been polluted to a certain extent.

Table 1. Statistical Table Showing Pollutants in

Body of Water	Total Waste Water (10,000 t/a)	Total Pollutants	Chemical Oxygen Demand	Biochemical Oxygen Demand	Suspended Matter	Oxides	Volatile Phenol
Songhua Jiang River System	52,525	577,842	241.5	69.4	90,258.7	4.3	
Ussuri Jiang River System	7,241	72,548	13,700.4	4,135.2	54,594.7	11.1	0.4
Heilong Jiang River System	496	6,075	2,311.3	1,634.1	2,096.8		0.001
Suifen He River System	1,251	1,468	951.2	222.6	292.4		
Wuyuer He River System	445	14,235	6,806.2	3,539.9	3891.1	0.0002	0.0016
Shuangyang He River System	31	2,368	1,485.9	693.3	188.8		
Lakes	5,611.7	33,163	13,830.1	7,816.1	11,329.7		1.4
Underground Water Bodies	1,248	135	5,539.6	4,334.9	3,579.4	1.5	0.2
Total	68,848.6	707,834	286,194.1	112,634.8	75,972.9	5.8002	12.7026

3. Soil Pollution. The soil has been polluted through the discharge of the three industrial wastes [waste water, waste gas, and industrial residues], irrigation using waste water, and the use of large quantities of chemical fertilizers and pesticides in farming. Statistics show more than 354,251,000 mu of directly polluted land in Heilongjiang Province, most of it in suburban farming regions of large and medium size cities such as Harbin, Qiqihaer, Mudanjiang, Jiamusi, and Daqing.

From 1979 to 1981, environmental protection units in Daqing ran sampling tests on 11 different subjects including soil, grain, vegetables, fish, meat, diary products, and human health which produced a 100 percent detection rate for benzene hexachloride [BHC], and a 15.4 percent detection rate for DDT. Residual BHC in soil where corn had been grown measured 1.19 ppm. In human body samples, the maximum BHC content was 0.2947 ppm, and the minimum 0.004 ppm. Heavy metal pollution in irrigation areas using waste water was marked. The mercury content of soil from 0 to 20 cm down increased 33 percent, arsenic increased 162 percent, and cadmium increased 146 percent. In 1985 Mudanjiang City's environmental protection units took 26 samples from an approximately 15 square kilometer area running from an integrated wood processing plant in the south to eastern Anmin Village to the north of Huacun Town in the northern, analysis of the result of which showed one-fifth of the cultivated land there to be polluted—approximately 4,200 mu. The soil's copper content was below the standard; cadmium and arsenic was above the standard at 12 locations, and zinc and lead generally exceeded the standard approximately four times. Along the rivers from Nanjiang to the breakwater 5 kilometers distant, they exceeded the standard by a maximum 5.3 times. The Chromium content was generally fairly high, and cyanide exceeded the standard by a maximum 19 times. Phenol was 23 times above the standard. Monitoring of a 4,000 mu insect-free autumn cabbage growing area produced a 0.211 - 1.075 ppm reading for BHC, a 0.013 - 0.081 ppm reading for DDT, and a 0.024-0.258 reading for mercury.

4. Atmospheric Pollution. Monitoring data show that the atmospheric environment of some of the cities in Heilongjiang Province has been polluted, the pollutants

mostly being carbon monoxide, sulfur dioxide, total particulates, and falling dust. Pollution from total particulates and falling dust is serious. Second most serious is nitrogen oxides and carbon monoxide, sulfur dioxide placing third. In terms of time of year, pollution is most serious each year during the autumn heating period when the concentration of all pollutants increases markedly. In terms of time of day, the most serious pollution occurs in the morning and evening followed by noon. During the last half of the night, pollution is least.

All fairly large cities and towns suffer from atmospheric pollution, the main pollutants—sulfur dioxide, nitrogen oxides, total suspended particulates, and carbon monoxide—generally exceeding the national category 1 standards and close to the category 2 standards. Pollution is fairly serious in cities such as Harbin, Qiqihaer, and Daqing where industry is fairly concentrated, all pollutants exceeding the category 2 standards, and some of them exceeding the category 3 standards.

II. Analysis of Environmental Pollution Avenues

1. Avenues of Water Environment Pollution. In Heilongjiang Province, pollution of the water environment results from the combined role of natural and man-made factors, but human activity is the leading factor. Man-made pollution of water bodies is largely pollution from the three industrial wastes, agricultural pollution, and pollution from daily human life, waste water pollution being the most serious.

According to 1985 statistics, every year 688.49 million tons of unprocessed industrial waste water is discharged into bodies of water. This waste water contains large amounts of harmful substances that seriously pollute the bodies of water. (See Table 1 for the pollutants in bodies of water).

2. Avenues of Soil Environment Pollution. Heilongjiang Province's soil environment has been polluted by the senseless discharge of the three industrial pollutants, and the use of large quantities of chemical fertilizer, agricultural pesticides, and waste water irrigation on farmland.

According to 1984 statistics, each year 1,055,956,000 tons of industrial waste water is discharged. Most of it flows (or

Bodies of Water in Heilongjiang Province

Cyanide	Mercury	Arsenic	Chromium	Copper	Zinc	Lead	Cadmium	Sulfides	Petroleum
	0.3	2.8	14.5	15.7		30.7	1.3	261.5	2,127.6
17.2	0.4	0.03	0.0004	1.1			81.9	5.6	
0.48								28.02	4.7
								0.400	0.895
		0.003	0.183	0.005		40.4	0.001	48.56	2,663.3
0.4	0.0001	0.3	0.6	0.5	5.2	0.4	0.03	12.0	165.96
0.5	0.05	12.7	0.15	3.2		0.5	0.007	33.9	7.7
1.28	0.8001	20.353	28.383	16.385		79.5004	2.001	1.337	4,975.755

percolates) directly into bodies of water, but some of it pollutes farmland through run-off, oozing, dripping, and leaking, approximately 13,000 tons being discharged this way every year and damaging 60,675 million mu. Each year, copper mining, metal smelting, and electroplating concerns pollute more than 10,000 mu of land.

Because of the pollution of the atmosphere, harmful substances in the atmosphere such as sulfur dioxide, airborne dust, and suspended particles fall to the ground on the wind or rainfall where they penetrate the soil to cause soil pollution. Each year, an approximately 500,000 mu area is polluted from the atmosphere.

3. Avenues of Atmospheric Environment Pollution. Most of the atmospheric pollution in Heilongjiang Province comes from the discharge of waste gas in industrial production and the leakage of harmful gases in the production process. This includes the burning of fuel in the industrial production process, which is the most serious source of atmospheric pollution. According to 1984 statistics, the province annually burns 38.631 million tons of coal from which 350,800 tons of nitrogen oxides, 2,317,700 tons of dust, and 72,500 tons of carbon monoxide are discharged. This creates very great pollution and damage to the atmospheric environment. This, plus the industrial kilns and boilers, and the residential stoves in use throughout the province mean that atmospheric pollution has spread rather widely. The very great expansion of the transportation industry in recent years, including 3,326 railroad locomotives, freight cars, and passenger cars, and more than 120,000 motor vehicles has polluted the cities and areas along transportation lines. The province consumes 8.56 million tons of crude oil, 2.21 million tons of heavy oil, 660,000 tons of diesel fuel, and 440,000 tons of gasoline annually. This is also a source of atmospheric pollution. In addition, in the process of production, chemical industry enterprises have accidents in which gasses run or leak, which may also discharge large quantities of harmful gasses into the surrounding environment to cause pollution.

III. Environmental Pollution's Harm to Human Health

The large discharge of the three industrial wastes, household waste water, and garbage not only pollute bodies of water,

the soil, and the atmospheric environments, but also cause serious harm to human health. Incomplete statistics show hundreds of thousands of people are harmed.

Harm to human health resulting from the pollution of water sources is greatest. For example, since it began resins production in 1977, large amounts of acidic waste water has run, oozed, dripped or leaked from the Hengshan No 1 Chemical Industry Plant in Hongxi. This has percolated into the soil and corroded nearby drinking water pipes. In April 1984, large quantities of waste water containing sulfuric acid radical ions directly entered the running water pipes, the running water pH reaching 2.9. More than 150 households suffered nausea and diarrhea. The Xilin Iron and Steel Mill and the Xilin Lead and Zinc Plant in Yichun City discharged waste water into the ground water in which 27.2 mg/L of tar was found, 2,700 times above the drinking water standard. Those who drank the water experienced various illnesses including anemia and nervous disorders such as dizziness and headaches. A 1976 examination of 659 people ranging in age from 21 to 45 in the Xilin District showed 199 or 30.2 percent to be suffering from such ailments. Waste water from the Haoliang He Chemical Plant in Yichun City polluted the ground water. Testing of 14 nearby wells during 1977 showed six seriously contaminated, their ammonia content reaching a maximum of 300 mg/L. This made 6,080 people in 1200 nearby households nauseous from drinking the water.

Waste gas pollution causes even more serious harm to the human body. A case in point is the large amount of carcinogens in the atmosphere in the Fulaerji District of Qiqihaer resulting from the residents year-round burning of coal tar residues from the Qiqihaer Steel Mill and the No 1 Heavy Machine Tool Plant. In this area, the number of people contracting cancer has increased markedly, the incidence reaching 269 per 10,000 people. The incidence of respiratory diseases has also increased markedly. Examination of more than 8,000 people in Yanjiang Township in that district showed the incidence of atmospheric pollution-related respiratory diseases to be 4,683 per 10,000.

To summarize the foregoing, bodies of water (underground water and surface water), the soil, and the atmospheric environment of Heilongjiang Province have been polluted

to varying degrees, pollution being fairly serious in individual areas. Environmental pollution has caused serious harm to human health. Therefore, protection and improvement of the environment is the leading problem today.

Greening Committee Plenum Told To Speed Up Afforestation Pace

OW1203154793 Beijing XINHUA Domestic Service in Chinese 0948 GMT 3 Mar 93

[By RENMIN RIBAO reporter Xia Jun (1115 0193) and XINHUA reporter Zhang Jianjun (1728 1696 6511)]

[Excerpts] Beijing, 3 Mar (XINHUA)—Tian Jiyun, vice premier of the State Council and chairman of the All-China Greening Committee, said today that China must speed up its pace of afforestation in the 1990's and comprehensively implement—and strive to accomplish ahead of schedule—the afforestation program set for the year 2000, thereby laying a good ecological foundation for the achievement of China's economic development strategy.

Tian Jiyun today presided over the 12th plenary session of the All-China Greening Committee, at which the CPC Central Committee and State Council named Fujian Province an "advanced province in greening barren mountainous areas." [passage omitted]

Tian Jiyun pointed out: Under the current situation in which we are establishing, step-by-step, a socialist market economic system, we must enhance awareness of afforestation and the environment among the broad masses of the people, especially among leading cadres at all levels. The more efforts we expend in accelerating reform, opening up, and economic development, the more attention we should pay to afforestation and the development of forests. We must not slacken our efforts in this regard. Leading cadres at all levels must take the lead in planting trees, "contribute to the greening of a locality during his or her tenure," leave green hills and clear water to future generations, and create green wealth. Doing these tasks represent a real service to the people.

Tian Jiyun urged all localities to earnestly formulate afforestation programs and annual implementation plans and sign pledges of responsibility at all levels to ensure their implementation. Leadership at all levels should initiate efforts for establishing afforestation centers; they should study—and find solutions to—difficulties and problems in afforestation work on a timely basis and do a good job in inspections, pre-acceptance checks, appraisals, and in meting out rewards and punishments. [passage omitted]

Gao Dezha, vice chairman of the All-China Greening Committee and vice minister of forestry, briefed the meeting on the progress of China's afforestation work in recent years. He said: Under the leadership of party committees and governments at all levels, we have made increasingly greater strides and done increasingly solid work in afforestation year after year, and a good momentum of flourishing development has emerged. He also outlined work for 1993 on behalf of the greening committee.

Guangdong Deputy Governor Ou Guangyuan, Fujian Deputy Governor Tong Wanheng, and Hunan Deputy Governor Zheng Peimin made reports on progress and the goals of afforestation work in their respective provinces.

State Councillor Chen Junsheng, Luo Gan, secretary general of the State Council, and officials of central departments were present at the meeting.

Army Urged To Join in 'Greening' Work

OW1503002093 Beijing XINHUA Domestic Service in Chinese 1103 GMT 11 Mar 93

[Text] The General Staff Headquarters, the General Political Department, and the General Logistics Department of the People's Liberation Army (PLA) recently jointly issued a circular calling on the whole Army to further strengthen afforestation and greening work.

After affirming the conspicuous results of the tree-planting and afforestation drive launched by the whole Army, the circular pointed out that China's per capita forest reserves are rather limited, that the greening level is relatively low, and that it is hardly possible to meet the needs of national economic development and Army building. Presently, it is necessary to further strengthen the afforestation and greening work of the whole Army in order to serve the needs of national economic construction and the needs of raising the combat effectiveness of our army.

The circular called on officers and men of the entire Army to enhance their consciousness toward afforestation and to heighten their sense of urgency and responsibility for quickening the pace of greening our land. Various units should vigorously build up momentum and carry out propaganda education through various means to enable the broad masses of officers and men, staff members and workers, and their relatives to fully recognize the importance of accelerating the process of afforestation; to firmly establish the concept that tree-planting, afforesting, and greening for the motherland constitute one of the fundamental state policies of our country; and to be fully aware that tree-planting, afforesting, and greening for the motherland constitute one of the long-term strategic tasks of the whole party, the whole Army, and the entire people of various nationalities throughout the country. It is necessary to firmly establish a mentality for persevering in arduous struggle, fully recognize that tree-planting and afforestation are our responsibilities and obligations, firmly establish a legal concept for tree-planting and afforestation, fully recognize that afforestation and greening are part of projects of the whole society for public good, and to uphold and carry forward the revolutionary spirit of making selfless contributions and the spirit that inspires the older generation to plant trees so the younger generation can enjoy the coolness of their shade.

The circular called on the whole Army to pay attention to key afforestation projects and quicken the pace of afforestation and greening, make great efforts to strengthen greening management and to consolidate and safeguard the achievements of afforestation and greening, bring into full play their role as a new force for greening the motherland,

and actively support the greening efforts of various localities. It is also necessary to earnestly implement and improve the responsibility system whereby unit leaders are obliged to fulfill the afforestation and greening targets during their terms of office. The circular added that efforts to support localities in afforestation and greening, in desert-control and sand-control, and in improving the ecology in the vicinity of the regions and districts in which our troops are stationed constitute an important part of the greening work of our Army. Army units at all levels should bring into play their superiority and actively participate in local key greening projects of the society for the general good and resolutely ensure the fulfillment, quantitatively and qualitatively, of the various tree-planting tasks entrusted by local governments.

The All-Army Greening Committee held a teleconference today. Fu Quanyou, director of the General Logistics Department and director of the All-Army Greening Committee, spoke about implementing the guidelines of the circular.

Nationwide River Pollution Survey Launched

*HK1203032693 Beijing CHINA DAILY in English
12 Mar 93 p 3*

[Article by staff reporter Liang Chao: "Pollution of Rivers Cries Out for Control"]

[Text] China hopes to finally bring pollution of its large rivers under control.

The Ministry of Water Resources in 1991 earmarked 2 million yuan (then \$730,370) for a nationwide investigation to find how much untreated sewage has been drained directly into China's main rivers, channels and reservoirs, which supply water to urban areas.

A nationwide survey has been conducted over the seven major river valleys—the Yangtze River, the Yellow River running from west to east across the country, the Huaihe River in the east, the Liaohe River, the Haihe and the Songhuajiang rivers in the north and the Pearl River in the South.

The first results of the survey are expected this year from two of the country's dirtiest rivers, the Haibe and the Huaihe.

An early water sample revealed that the quality of these rivers had deteriorated because of at least 30 million tons of waste being drained into them each year.

River quality worsens in the current dry season when the water level falls.

So far this year, serious pollution has been reported in the Maopingxi, a small tributary running into the Yangtze River in Zigui County in central China's Hubei Province, and the Shayinhe between Henan and Anhui provinces.

Worse, a 250-kilometre section of the Guijiang River, one of the major tributaries of the Pearl River in the Guangxi Zhuang Autonomous Region, is blackening.

The worsening pollution is being closely monitored by the authorities concerned in the river's upper and lower reaches as well as by local officials and experts.

A large number of pollutants, mostly untreated industrial liquids discharged by enterprises and domestic sewage from people living along the river, have poured into the river.

All this has badly poisoned the river's water from Lipu County to Wuzhou City, in the eastern part of Guangxi.

As a result, a clearly visible "dividing-line" of clean and turbid water is emerging in the river's mouth in Lipu County, where a small river empties itself into the Guijiang.

Fortunately, the river in Yangsuo, part of the world-famous beautiful Guilin landscape, is not so bad.

But pollution is already spreading towards surrounding areas on the Guijiang River's upper reaches, including Shaoping, Pingle and Lipu counties and Wuzhou City, where the river runs into the Pearl River.

Two paper mills, one in Lipu and the other in Shaoping, discharge about 15,000 cubic metres of untreated industrial waste into the Guijiang each day.

Meanwhile, pollutants from other factories as well as human sewage have worsened the problem, turning the Guijiang black till it reaches the Pearl River.

The spreading pollution has thrown the residents living along the Guijiang into a panic as this section of the river is the major source of their drinking water.

The chemical pollutants there have exceeded State-set tolerance levels for drinking water. Some of the poisoning is 93 times higher than acceptable.

Beijing To Host UN Earth Day in June

*OW1303112093 Beijing XINHUA in English 0856 GMT
13 Mar 93*

[Text] Beijing, March 13 (XINHUA)—A meeting to be held in Beijing on June 5 to mark the 20th anniversary of the United Nations' "Earth Day" will greatly promote environmental cooperation between China and world organizations and countries and regions, according to a Chinese official.

Qu Geping, deputy director of the Environmental Protection Committee under the State Council, said it was a significant move for China to host the meeting.

"The meeting will provide a golden chance for Chinese and foreign environmental officials and workers to learn from each other," said Qu who is also director of the National Environmental Protection Agency (NEPA).

As part of the activities to mark the day, a series of exhibitions on environmental protection will be held in major cities across the country.

China has always attached importance to global environmental protection and has actively participated in multilateral cooperation, he said, citing the U.N. Conference on the Environment and Development Conference (UNCEDC) last June as an example. Chinese Premier Li Peng signed

"the framework convention on climate change" and "the convention on biological diversity" at the conference.

NEPA has maintained good working relations with related world environmental protection agencies, Qu said, adding that the cooperation between China and the U.N. Environment Program (UNEP) had been fruitful, especially in drawing up regulations and the protection and supervision of wildlife.

Last year saw record growth in joint environmental projects between China and the World Bank and the loans it provided, Qu said. The bank was satisfied with the implementing of these loans and has expressed the wish to further increase loans to China to boost its environmental protection ability.

The cooperation between China and the World Bank, the Asian Development Bank (ADB) and the U.N. Development Program (UNDP) dealt mainly with the follow-up work of the UNCEDC, he said. With the help of international environmental agencies, China has carried out extensive investigations and came out with a plan on the gradual depletion of CFC, widely acclaimed by the world environmental protection circles.

NEPA is currently responsible for the implementing of seven projects financed by the World Bank, ADB and the Global Environmental Facility (GEF), including the construction of a NEPA information center and the study of biological diversity. It also supervises eight local projects in Liaoning, Jiangsu and other provinces, which have been or will be carried out with loans from the World Bank and ADB.

In the meantime, NEPA has conducted bilateral cooperation on environmental protection with other countries and regions.

Qu said that the joint study between NEPA and the U.S. Environmental Protection Agency on the affects of air

pollution on children's lungs was well under way. A feasibility study on pollution control in Baiyangdian, Hebei Province, between NEPA and Finland had been completed.

"It is of crucial importance to help with and learn from each other in global environmental protection," Qu said. As a developing country, China faces the challenge of the shortage of technology as well as money. It has every reason to seek wider international cooperation.

Anhui Province Develops Forestry-Related Businesses With Foreign Help

*OW1303103493 Beijing XINHUA in English 0722 GMT
13 Mar 93*

[Text] Hefei, March 13 (XINHUA)—East China's Anhui Province has introduced 200 million U.S. dollars in overseas investment since the latter half of last year to develop local forestry-related businesses.

A dozen more projects are under negotiation in the areas of afforestation, the timber processing and forestry-related tourism.

Anhui's forestry departments, which used to depend on state investment, suffered from low economic returns owing to a shortage of funds to expand operations and outdated technology.

To tackle the problem, the province started to seek overseas cooperative partners last year.

Foreign partners who have invested in the province include those from the United States, Finland, Malaysia, the United Nations and other international organizations.

One U.S. company alone has invested 180 million U.S. dollars in Anhui.

Projects now being implemented are in such areas as afforestation, processing of wood pulp, insecticides, protection of wildlife and building materials.

INDONESIA

West Jakarta Polluted River Causes Respiratory Diseases

*BK3112080892 Jakarta ANTARA in English
0741 GMT 31 Dec 92*

[Text] Jakarta, Dec 31 (Earth Wire/ANTARA)—Mookevart river, which is located in West Jakarta, has been heavily polluted and caused respiratory diseases, according to a recent study. [words indistinct] that 17 companies in Jakarta and 61 textile and leather factories in West Java have contributed to the miserable condition of the river.

The companies discharge an average of 57.8 tonnes of industrial wastes daily to the river, he noted.

Hartanto said that the study which was conducted in two villages has found out that 10 kinds of respiratory diseases have broken out in these areas.

Head of the Jakarta Environmental Management Office E. Budi Raharjo calls on the people to actively take part in the river clean-up program launched by the government.

It is therefore imperative for the Jakarta and West Java municipalities to foster an integrated effort in coping with the worsening condition of the Mookevart river, Raharjo said.

Vice Chairman of the Environmental Management Board P.L. Coutrier shared the same opinion by saying that dealing with environmental matters calls for the involvement of various groups including the people in general, non-governmental organisations, and journalists.

The participation of non-governmental organisations should be taken into account as environment [word indistinct] too complicated and vast matters to be handled by the government only, he said.

Austrian Envoy Says Eco-Labelling Law To Be Revoked

*BK1103114293 Jakarta ANTARA in English
1111 GMT 11 Mar 93*

[Text] Jakarta, March 11 (ANTARA)—The Austrian parliament has decided to revoke the law on labelling requirement for tropical timber or the ecolabelling law, Austrian ambassador to Indonesia Herbert Kroell said here on Wednesday.

The issue was first discussed last March 3 by the Austrian house commission on environment while the revocation itself is expected to be effective on March 15, he said.

Kroell said that the law was actually intended to protect the world's tropical forests, not to ban timber imports from the developing countries.

He said Austrian legislators had realized that the ecolabelling law was not the proper way to protect tropical forests because more comprehensive and international approaches would work much better.

Kroell said that the law was revoked by the Austrian parliament on the consideration that it would not directly

safeguard the world's tropical forests as their conservation was a global responsibility which could not be handled by only one country.

The desire of Indonesia and Austria is therefore to establish a "sustainable forest management" so that the future generation will also draw benefits from the tropical forests, he said.

He said the ecolabelling law was revoked in the wake of the visit of the Austrian parliamentary mission to Indonesia from Feb 11 to 17 on the suggestion of Radius Prawiro, Coordinating Minister for Economy, Finance and Industry.

While here they will study the government's policy on environment and tropical forest conservation.

Two coalition parties of Austria, the conservative and socialist democrat parties, which represent about 75 percent of the Austrian voters last Feb 26 were the first to make a proposal to withdraw the ecolabelling law for products from tropical timber nations.

About 45 percent of Austria's territory is forest land producing 13.8 million cubic meters of timber as against the 35 million cubic meters of tropical timber produced by Indonesia.

JAPAN

New Type of Plutonium Nuclear Reactor To Be Developed

*OW2712090092 Tokyo KYODO in English
0843 GMT 27 Dec 92*

[Text] Tokyo, Dec. 27 (KYODO)—Japan's Atomic Energy Research Institute will start a new scientific program to develop a high converter reactor that can efficiently use plutonium, officials said Sunday.

The Atomic Energy Commission has already begun studying if the plan should be included in the long-term plan of the nation's basic nuclear energy policy.

The high converter reactor, if developed, is expected to prevent a buildup of excess plutonium because the nation's plan to develop the fast breeder reactor (FBR), which is hoped to consume much of the nation's plutonium supplies, has been delayed, the officials said.

The high converter reactor is a new type of nuclear reactor which uses a combination of uranium and plutonium. It uses light-water for cooling its reactor like a light-water reactor.

The spaces between each fuel rod in the new reactor are narrower than those in current light-water reactors so that the quantity of cooling water between fuel rods can be reduced.

When the fast breeder reactor is put into practical use, the high converter reactor can be changed to consume only uranium like conventional nuclear reactors by changing its reactor structure and arrangements for fuel rods, the officials said.

The institute started studying the high converter reactor in 1985 and has concluded recently that it is possible to develop the reactor using the related systems and techniques used in light-water reactors.

Japan has a policy of not possessing unnecessary plutonium.

The plutonium supply, however, is expected to reach 85 tons by 2010, 30 tons of it enriched and shipped from Europe, and 55 tons reprocessed at domestic plants.

The Science and Technology Agency expects the supply to meet the demand for fuel, which is forecast to be about 35 tons for fast breeder reactors and 50 tons at existing nuclear power plants.

The semi-governmental Power Reactor and Nuclear Fuel Development Corp. is developing a prototype fast breeder reactor, called "Monju" in Tsuruga, Fukui Prefecture, central Japan, but the project has been delayed.

The government has not yet decided on other sites for building more fast breeder reactors.

Some scientists doubt if the existing nuclear power plants will consume 50 tons of plutonium because it costs more than uranium fuel.

Ministry To Present Telecommunications Proposal to Clinton

*OW3112082892 Tokyo KYODO in English
0754 GMT 31 Dec 92*

[Text] Tokyo, Dec. 31 (KYODO)—The Posts and Telecommunications Ministry will propose a joint study with the United States on the enhanced use of telecommunications as one way to protect the earth's environment, ministry officials said Thursday.

The proposal will be presented to President-elect Bill Clinton's administration after Clinton takes office in mid-January, the officials told KYODO NEWS SERVICE.

The postal ministry has been pressing for greater use of telecommunications networks to save the energy consumed by transport vehicles such as automobiles in spheres in which telecommunications can substitute as a tool to relay information.

Among other things, the proposal is aimed at reducing harmful carbon dioxide (CO₂) emissions by automobiles as both Tokyo and Washington prepare to legislate CO₂ emission controls, the officials said.

They said Japan and the United States could work together on research and development of advanced telecommunications systems to promote what they call an "environmental telecommunications policy."

The concept is that the increased use of telecommunications in such forms as teleconferencing could reduce the use of automobiles.

According to a two-year U.S. study, telecommuting or working at home using personal computers and other telecommunications equipment has reduced car commuting by some 30 percent.

The postal ministry, for its part, forecast that CO₂ emissions could be reduced by 600,000 tons a year or roughly 0.2 percent of Japan's total CO₂ emissions if teleconferencing was extended to some 5,000 companies over the next decade.

Japan is among the world leaders in terms of CO₂ emissions and has committed itself to stabilizing such emissions at 1990 levels by the year 2000.

Panel Proposes Guidelines To Prevent Air Pollution

*OW1003114393 Tokyo KYODO in English
0807 GMT 10 Mar 93*

[Text] Tokyo, March 10 (KYODO)—An Environment Agency panel on Wednesday [10 March] urged new guidelines to restrict the use of two industrial cleaning agents to prevent air pollution.

The panel, in a report, proposed stricter control on the organochlorine solvents trichloroethylene and tetrachloroethylene, which are often used in laundry and solvent factories to clean metal parts.

For the sake of public health, it said the desirable amount of trichloroethylene in the air should not be more than 250 micro-grams per cubic meter, and for tetrachloroethylene 230 micrograms.

The two solvents are known to be poisonous to nerves and some researchers say they cause cancer.

The Environment Agency has detected a maximum of 2,550 micrograms of trichloroethylene and 6,240 micrograms of tetrachloroethylene around some factories, agency officials said.

The panel submitted the report to the agency's Central Council for Environmental Pollution Control.

The agency plans to investigate why the discharge levels are so high, the officials said.

Cabinet To Seek Diet Ratification of Climate, Biodiversity Agreements

*OW1203041593 Tokyo KYODO in English
0136 GMT 12 Mar 93*

[Text] Tokyo, March 12 (KYODO)—The Cabinet will seek approval from the Diet during its current session for Japan's ratification of two environmental agreements on climate change and biological diversity, officials said Friday.

The treaties are the Convention on Climate Change and the Biodiversity Convention, which Japan signed at the Earth Summit in Rio de Janeiro last year.

The Convention on Climate Change is designed to rein in emissions of gases blamed for global warming through advanced countries supplying technology to developing nations and pegging gas emissions to 1990 levels.

Already, 160 countries have signed the convention and 13 have ratified it. It is expected to come into force by the end of the year.

Japan has already embarked on measures designed to comply with clauses in the treaty.

The Biodiversity Convention, which deals with the equal distribution of benefits from the use of genetic resources and transfers of biotechnology, aims at preserving the environment for all forms of life.

It has 161 signatory countries. Nine have ratified the treaty and it is also expected to come into effect this year.

The cabinet also decided to present the Basic Environment Law at the same 150-day Diet session, which opened in late January and lasts through June.

The legislation is an attempt to achieve economic development and a sustainable environment.

The law introduces the concept of an environment tax or levy on environmentally damaging products and activities, and promotes the concept of environmental impact assessments.

An environmental panel of the ruling Liberal Democratic Party approved the final draft of the bill on March 9.

Some northern European nations have already introduced environmental taxes, and the organization for economic cooperation and development plans to recommend the introduction of such taxes to its 24 member states.

Nongovernment groups have criticized the bill for only noting the need for "appropriate steps" to be taken over environmental impact assessments.

NORTH KOREA

Absent From UN Conference on Tumen River Development

SK1803032493 Seoul YONHAP in English
0256 GMT 18 Mar 93

[Text] Seoul, March 18 (YONHAP)—North Korea did not send a delegation to a United Nations conference on the Tumen River in Helsinki that opened Tuesday, a South Korean Foreign Ministry source said Thursday.

Pyongyang was absent from the Tumen River area development program resource, industry and environment working meeting, he said, speaking on condition of anonymity.

North Korea, which has declared a state of "semi-war" and stopped issuing visas, was taking a keen interest in the Tumen River development project, sponsored by the United Nations Development Program (UNDP), as it was expected to help the communist country develop its devastated economy.

"All the parties to the program—South and North Korea, China, Russia and Mongolia—were invited to the conference," the source said.

North Korea didn't send any official from Pyongyang or its embassy in Helsinki, according to the South Korean Embassy there, he said.

The meeting was to intensively discuss possible environmental damage if the program goes into full swing. It ends Friday.

Meanwhile, Japan's KYODO news service, in a dispatch from Beijing Wednesday, quoted a source at the UNDP representative office in Beijing as saying that North Korea had notified the UNDP it would not attend the meeting through the U.N. headquarters on Tuesday.

"North Korea informed us that it couldn't participate in the meeting because the country was in a state of semi-war due to the South Korea-U.S. military exercise Team Spirit," the unidentified source was quoted as saying.

Since the North Korean Embassy in Beijing had said it would push ahead with the program clear of political issues, KYODO analyzed that Pyongyang's decision to pull out of the Nuclear Non-proliferation Treaty (NPT) and not to attend the Helsinki meeting might dampen the willingness of western countries to participate in the program.

In addition, the move might give Russia and China, both of which share the river with North Korea, a reason to press ahead without Pyongyang, KYODO added.

SOUTH KOREA

To Establish Pollution Prevention Joint Committee With China

SK1203014393 Seoul YONHAP in English
0049 GMT 12 Mar 93

[Text] Seoul, March 12 (YONHAP)—South Korea's environmental diplomacy received another boost this week when China accepted a proposal to establish a joint committee for research and pollution prevention, Foreign Ministry officials said Friday.

A Korean delegation led by a director-general-level official is to go to Beijing next month to select viable projects now that China has given a positive response to Seoul's offer for bilateral environment cooperation.

The first two-way talks on the environment will be specially welcome here because they are the beginning step to preventing air-borne pollution flowing from China to neighboring Asian countries.

Seoul wants access to Chinese data on air and Yellow Sea pollution for use in clean-up projects. Beijing emphasizes technology transfer in clean coal and emissions reduction.

Work is under way to sign a Korea-Japan environment pact, under which Seoul hopes to get advanced technology. The pact, to be signed during first half of the year, includes a training program for some 20 Korean environmentalists in Japan.

Seoul will accept Moscow's proposal for a joint study of East Sea pollution, hopefully with funding from U.N. organizations, the officials said.

Although follow-up checks showed there was no danger from nuclear waste discarded in the East Sea by the Russian Navy, officials here want a thorough Seoul-Moscow joint study.

The U.N. Development Program (UNDP) and the U.N. Economic and Social Commission for Asia and the Pacific (ESCAP) have already responded favorably to Seoul's request for funding for the study and may contribute up to 500,000 U.S. dollars, the officials said.

Government To Crack Down on Rhino Horn Trading

SK1203071193 Seoul THE KOREA TIMES in English 12 Mar 93 p 2

[Text] The government will crack down on trading of rhino horns, while seeking to join the convention on protection of wildlife by the end of June this year the Foreign Ministry said yesterday.

A ministry official said that member countries of the convention resolved at its 29th standing committee meeting March 1-5 in Washington to call on South Korea, Japan, Taiwan and Yemen to halt trading of rhino horns and destroy their holdings to protect the endangered animal.

The international pact is the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) which was adopted to protect the wild animal.

Rhino horns are used as a core ingredient of Oriental medicine but they are smuggled and traded on black markets in Korea, the ministry official said, adding that there are no reliable figures about the trading.

Unless the trading is eradicated by the next standing committee meeting slated for September this year, the four countries will face trade retaliation in accordance with the resolution adopted at the last meeting, the official said.

The U.S. government held a public hearing on Jan. 21 to decide whether it would take retaliatory action against illegal trader nations of wildlife now on the verge of extinction, the official said.

The Korean Government has been asked to submit documents to the committee concerning illegal dealing in rhino horns and measures to crack down on the smuggling activities.

MALAYSIA

Straits of Malacca 'Potential Time Bomb'

BK0903151193 Kuala Lumpur NEW STRAITS TIMES in English 8 Mar 93 p 7

[By M. Krishnamoorthy]

[Text] Kuala Lumpur, Sun.—More than 490 accidents, including collisions, ships sinking and running aground, occurred in the last five years in the waters off Peninsular Malaysia. The Marine Department's adviser for search and rescue operations Encik [Mr.] Maarof Sanif, said the figure also included medical evacuation, engine breakdowns, and fire on board the vessels.

Maarof, who is also the department's head of pollution control, added that the accidents had been increasing from 1988 until last year: 77, 93, 98, 112, and 110 respectively.

"Of these accidents small- and medium-scale oil pollution amounted to 45 in the last five years. The Nagasaki Spirit was one of the largest, spilling 13,000 tonnes of crude petroleum in the Straits of Malacca last year."

In January this year, there were 20 accidents and the recent spate of accidents in the strait warrants urgent attention to make the narrow waterway safer and free of pollution.

A senior lecturer at the Maritime Academy Malaysia, Captain Hassan Ali, said the Straits of Malacca was more prone to accidents than the other parts because of its narrow waterway. He likened the strait to a potential time bomb and said there was an urgent need to enhance safety of navigation in the strait and the adjoining waters. Otherwise, the time bomb could go off anytime.

Being one of the world's narrow waterways, it is traversed by more than 2,000 vessels of all types and at least 200 ocean-going merchant ships and bulk oil tankers. Hassan said that if immediate action was not forthcoming from the neighbouring countries to make it a safer waterway, there was no guarantee that an accident of the magnitude of Exxon Valdez, which occurred in 1989, would not occur in Malaysian waters.

"By then it will be too late as oil and sludge will be all over our shores. A very high percentage of the causes of accidents can be attributed to human error and negligence. These accidents pose a danger to our fishermen, leisure craft, and sailing boat."

Hassan said that some of the culprits got away scotfree when they should have been fined heavily.

"The Malaysian Government had difficulty in bringing the culprits to book as it had not ratified international conventions such as Civil Liability for Oil Pollution Damage and the Marpol Convention."

Hassan proposed several enforcement measures to cut down accidents:

- the authorities and shipping community should work together;
- an updated traffic separation scheme be implemented for the strait;
- a vessel traffic management system requiring compulsory position reporting be initiated;
- increased enforcement and surveillance in the waterway, and,
- better training and awareness of users of the strait.

Meanwhile, Chairman of the International Shipowners Association of Malaysia Tengku Zainal Rashid Tengku Mahmud, said that a collision could occur at any time in the busy strait. He agreed that a higher level of safeguards should be taken by neighbouring countries and by the International Maritime Organisation (IMO).

"More commitment in terms of funding from the IMO can make the strait a safer place," he added.

In January this year, Prime Minister Datuk Sri Dr. Mahathir Mohamed said Malaysia would make a concerted effort to plug loopholes in international maritime laws which allow ships to pollute waterways and escape paying compensation.

"The Straits of Malacca is narrow and, therefore easy for accidents to occur. We want the countries whose ships ply the route to share the cost of maintenance and provide equipment to ensure there are no accidents," Dr. Mahathir said.

"A common trick among international ship owners was to register their vessels in third countries such as Liberia and Panama which would disclaim responsibility in the event the vessels were involved in accidents," he added.

SINGAPORE

Iranian Tanker Official Denies Sludge Dumping

*BK1103110893 Singapore THE STRAITS TIMES
in English 11 Mar 93 p 3*

[By Tan Ooi Boon]

[Text] The Iranian supertanker accused of dumping sludge in Malaysian waters is now anchored in international waters off Singapore.

But the Environment Ministry (ENV) said that the vessel will not be allowed into Singapore waters unless it can show proof that its waste has been disposed of properly.

A representative of the Sanandaj-2 told The Straits Times that the tanker was scheduled to come to Singapore for repairs in two to three weeks' time after its cleaning operation is completed.

The tanker's attending superintendent, Mr A. Khanifar, said that proper documents would be shown to the ENV to prove that the vessel's sludge was disposed of legally.

Recently, some Malaysian fishermen wrote to the authorities and accused the 253,837 deadweight tonne tanker of dumping about 4,000 tonnes of sludge in the Straits of Malacca. They said that the dumping posed a threat to the rich fishing grounds off Pengerang, about 150 km from Johor Baru.

On Tuesday, the Malaysian Department of Environment was ordered to deploy aircraft and ships to find and arrest the National Iranian Tanker Company vessel for investigations.

Yesterday, Mr Khanifar denied that there was any illegal disposal of sludge—oil and mud waste found in a crude oil cargo container—from his vessel. He said that about 200 employees from a Singapore company, Corroline, have been cleaning the tanker, which has been anchored off western Singapore since Feb 28.

Corroline manager Mr P. Edison said that its workers have cleared more than half of the 700 tonnes of sludge found in

the tanker. The waste, which is put into special waterproof plastic bags, is being kept on the vessel's deck while awaiting disposal by authorised contractors.

Mr Khanifar said the allegation about his ship came from people who did not get the cleaning contract.

He said: "These people are definitely not fishermen. This is because they know about the ship's technical information, like the number of crew and compartments, when they wrote to the authorities.

"We don't see why our tanker should be arrested as we have done nothing to deserve such action."

He said he has informed the Iranian embassies in both Jakarta and Kuala Lumpur about the situation and hopes that the Malaysian authorities would contact them to clear any misunderstanding.

"We have nothing to hide. I welcome the press and authorities to come on board and visit my ship," he said.

TAIWAN

Prospects for Handling Nuclear Waste With PRC 'Promising'

*OW1103182993 Taipei CNA in English
0807 GMT 11 Mar 93*

[Text] Taipei, March 11 (CNA)—The prospects for cross-Strait joint processing of Taiwan's nuclear waste in Mainland China are promising, said Dr. C.S. Su of National Tsing Hua University Wednesday [10 March].

Su said scholars and nuclear scientists from both sides of the Taiwan Straits are optimistic about the plan, though locations for the nuclear waste storage have yet to be decided.

The dean of Tsing Hua's College of Nuclear Science made the remarks upon returning from the mainland where he and a Taiwan academic delegation took part in a world Chinese nuclear energy academic seminar held last week in Peking [Beijing].

He said he is pleased to see that breakthroughs in academic exchanges in nuclear science and application between the two sides have been made during the seminar. A total of 27 papers about the subject were presented by participants from Taiwan and the mainland.

To further promote cooperation and exchanges, Su said mainland experts, including Wang Dexi, chairman of the China Nuclear Science Association, will be invited to visit Taiwan in the near future.

THAILAND

Technology Institute Project Uses Waste To Generate Electricity

*93WN0312A Bangkok THE NATION in English
22 Feb 93 p c8*

[Article by Gary van Zuylen: "Turning Waste Into Power"]

[Text] The difference between waste and resources is often just a state of mind.

Studies have long proven, for instance, that methane gas emitted from organic waste can be used to create electricity. In theory at least, the biomass process saves a user money and helps clean up the environment.

Researchers at the Thonburi campus of the King Mongkut Institute of Technology (KMITT) have put the theory into practice and proven that benefits occur all around. Working specifically with the tapioca industry, a pilot project in Ratchburi has shown how 100 rai of stinking and highly polluting waste ponds can be replaced by equipment capable of recycling enough electricity to run the production line.

In fact, the capital cost involved is entirely recoverable in just three years.

But, says KMITT associate professor Dr Morokot Tanti-charoen, the next stage involves convincing the private sector to do away with its wanton past and install the necessary tanks and accompanying accessories. "This will be difficult. But local residents are complaining more about pollution and there are signs that companies are becoming more conscious of the waste they produce," she says.

Using waste to create energy is not entirely new to Thailand, says Morokot. In its simplest form, the burning of wood for charcoal is the traditional process.

Other commercial applications include the use of rice husks for generating electricity and supplying partial power to rice mills. Biogas—that is, using the gas emitted for fuel, too—has long been used in Thailand for distilling whisky.

A project implemented by the Excise Department involved 12 plants that anaerobically convert waste water to sulfate gas, which in turn runs the boilers. Another example is the Soon Hua Heng company's use of wood chips and rice husks as a source of energy for a thermal power plant.

The KMITT research zeroed in on a more pressing problem: the current practice of cassava farmers simply spilling their waste into a series of open ponds. Morokot says that the scale of the pollution is huge as each factory requires 100 rai of land to build enough ponds to serve a factory output of 2,000 cubic metres of waste water. This is the standard quantity of effluent spilling from an operation with a capacity of 100 tons of starch per day.

The waste averages a COD (chemical oxygen demand) level of 25,000 to 45,000 mg per litre. Considering that COD is about 2.5 times greater than BOD (biological oxygen demand), the raw waste is many hundreds of times higher in organic solids than the worst Bangkok klong, and worse than raw sewage.

Thailand has about 60 large tapioca factories, most of which are found in the Northeast and east coast regions. They all have an average output of at least 100 tons per day. Many more companies were involved in the sector in the past, but the trend has been for larger agroindustrial concerns to push out the smaller operators.

Research led by Dr Morokot—who is now the first acting dean of the School of Bio-Resources and Technology, having previously been with the KMITT's School of Energy and Materials—was begun in 1987. Working with post graduate students, the team soon after constructed a pilot plant reactor at the Ban Pon Tapioca Starch Industrial Co in Ratchburi Province.

The plant has three steel tanks coated inside with epoxy resin. Effluent is fed into the unit where the micro-organisms react continuously and break down the waste naturally.

Nylon rings, measuring 9 cm in diameter and width, are used to trap the bacteria and speed up the process. Gas is then produced as a by-product and it is trapped in a holding tank. This biogas contains between 60 to 80 per cent methane and 20 to 40 per cent carbon dioxide, but with such levels there is no need for further separation prior to use in a power generator.

"Our technology speeds up the rate of biological growth," continues Morokot, "as this will reduce the amount of organic solids in the waste." The pilot plant showed effluent to have been reduced in COD content by 80 to 90 per cent, effectively allowing large quantities of water to be run for basic but controlled irrigation at a later date.

The second part of the trials was to make the gas useful by generating enough electricity to power the tapioca production process itself. The Bt4 million budget did not allow for the research team to actually construct a generating plant, but the gas was measured and proven useful by simply powering cooking utensils.

When compared to the factory operation, the gas equation was as follows: For a daily production of 70 to 80 tons of tapioca starch per day at the Ban Pon factory, 2,200 litres of fuel oil is used in the drying process and 300 kilowatts of electricity for the added operation of machinery. At the time of the initial study, this cost was Bt300,000 per month.

Based on these figures, the researchers showed that in order to contain 2,000 cubic metres of waste water daily, the installation of reactor tanks with a capacity of 2,000 cubic metres will be needed to produce 6,000 cubic metres of biogas, equivalent to 3,120 litres of fuel oil. At the time, the payback period was estimated at four years with an internal rate of return of 34 per cent.

Morokot says that construction costs and a slightly more simplified design has brought the payback period down to three years. A standard model for the average tapioca factory has a cost of Bt13 million, compared to over Bt20 million for their imported competitors. And as the plants get larger the economies of scale mean that extra electricity can be produced for little more cost, provided that the factory has sufficient output.

Another advantage is that the Electricity Generating Authority of Thailand (EGAT) is now reportedly showing positive signs of allowing companies to sell electricity back to the main grid, should they be able to produce it themselves. "This makes the biogas process even more advantageous, and in fact palm oil millers in Malaysia are already

doing this, not to mention the vast improvement to the environment by breaking down organic waste," adds Morokot.

The research appears to also be paying off as three companies have already shown a definite interest in contracting KMITT's services. The first agreement is already underway and this is for Soon Hua Heng's new 200 ton per day tapioca starch factory in Chachoengsao. The second is for an existing fructose factory owned by Chao Khun Agro Products Co in Saraburi.

Morokot said that Chao Khun were told by the provincial governor to clean up their ponds after many complaints from nearby residents. Initial work by KMITT temporarily reduced the smell and then the company was requested to go all the way and solve the problem. The university is now designing the plant and will act as a paid consultant during construction and early operation. The third contract is a Thai Wah Co affiliate which has also been told to clean up their act.

She feels confident that government action is appropriate given the scale of the problem, but concedes that company managers need to be forced into a corner by the authorities before they will act. Seminars carried out by KMITT have attracted interest but little else so far.

"I accept that it will take time to convince many factories to implement such new technology, even though the investment pays for itself. But we have been successful in establishing a firm awareness of the process of converting food waste to energy. Furthermore, our research shows that it is not just applicable to the tapioca industry, but other food sectors including the growing canned fruit industry," the well-respected microbiologist says.

Several other Thai universities have bio-mass research projects, but KMITT is considered to be out in front not just nationally but regionally, says Morokot. Especially so since the founding of the Bio-Resources and Technology School. This post-graduate English-language course is being expanded to include post-harvest and bio-chemical technology by 1995.

VIETNAM

Science, Environment Cooperation Agreement To Be Signed With Malaysia

*BK1103090693 Hanoi Voice of Vietnam in English
1000 GMT 10 Mar 93*

[Text] Vietnam and Malaysia will soon sign an agreement on strengthening the bilateral cooperation in science and environment. This is the result of the talks between Dang Huu, Vietnamese minister of science technology and environment and his Malaysian counterpart Hieng Ding in Kuala Lumpur on Tuesday [8 March].

BULGARIA

Situation at Novi Khan Radioactive Waste Storage Site Examined

AU2212211592 Sofia POGLED in Bulgarian
Issue 50, 14 Dec 92 p 5

[Boryana Borisova report: "Does Novi Khan Threaten Us With a 'Second Chernobyl'?"

[Text] Few people know that 7 or 8 kilometers outside the village of Novi Khan in the Sofia district lies the only facility in Bulgaria for storing all forms of radioactive waste. It has existed for almost 30 years, and today has little free space left to store the discarded materials.

The shaft for storing the most highly radioactive waste is almost full, and the other wells have little free space left. Funds have been earmarked for modernizing the storage facility, but so far no one knows when this will happen. The issue of selecting a suitable new site has not even been raised. The last inspection of the facility was made on 21 May 1992 by a commission composed of representatives of the Environment Ministry and the Committee for Peaceful Uses of Atomic Energy, the mayor of Elin Pelin Municipality, and a Civil Defense representative. The commission concluded that "...from the ecological viewpoint no breaches of the requirements concerning the safe storage of waste have occurred."

No deviations from the established norms have been recorded. However, because of its limited size, the storage site can no longer serve the role of a national facility. We need at least one other storage facility.

Moreover, "the immense volumes of low- and medium-level radioactive waste from the Kozloduy Nuclear Power Plant are to be processed on site at the Kozloduy Plant, then buried in a specially constructed receptacle designed for the long-term storage of the packed products obtained after processing. The site for building such a complex structure has not yet been selected."

The high-risk facility is very well protected. Until now no journalists have obtained access to the fenced-off site. The heavily guarded gates were opened for the first time to admit a POGLED team. We were given to understand that permission to do this can only be granted by representatives of the Institute of Nuclear Research and the Nuclear Energy Industry of the Bulgarian Academy of Sciences.

It is a strange fact that the background radioactivity is highest at the entrance to the storage site, which may be due to uranium seams under the earth. At the site the ground naturally slopes down toward the village of Novi Khan. With a population of 2,800 it is the largest village in the Elin Pelin Municipality, and is well-known for the large villa zone located nearby. Mayor Nikola Dinkov informed us that the village's underground water supply sources are located quite close to the storage facility. Twice a year, specialists from the former district drainage and water supply organization take samples of the drinking water. No one has reported any results that give rise to concern. As regards other research studies, Mr. Dinkov admitted: "I

cannot remember when the air purity was last tested... The village has a natural background radiation level that gives no cause for alarm. The main cause of this background radiation may be the uranium ore processing shop near the neighboring village of Gabra. The ore is transported there through the surrounding villages in open trucks. Some time ago I was told that Russian tractors passed by at night hauling containers filled with waste...."

"A casting shop is located near the site. The workers there are not complaining of any illnesses, at least for the moment.

"Our only advantage is that this district is the safest in Bulgaria from the seismic viewpoint. Whether this is for good or ill, it is nonetheless a consolation for us."

We also visited the village's health service. Dr. Rakhila Nozharova is a pediatrician, and has been examining local people for the past 35 years. "We know about the existence of the storage facility," she said, "but have no other information. Over all these years, no one has bothered to investigate the local population, and I am recording a rise in the incidence of neoplastic diseases. For the moment, the findings are only conjectural. It is known that many young people have died of cancer. Two years ago the district hospital closed down its disease prevention department, and now no prophylactic examinations are conducted. Only the children are examined at the hospital in Elin Pelin before they start school. This year we discovered many eyesight anomalies, such as short- and long-sightedness and astigmatism, and the number of cases of spinal distortions has increased. However, I repeat, the findings are merely conjectural. One cannot assert with any certainty that the young people here suffer more diseases than elsewhere. Accurate data is needed to establish this."

Milko Milanov, a specialist from the Institute of Nuclear Research and the Nuclear Energy Industry, has visited the site most frequently. "Before the waste arrives at the site," he explained, "it has to be checked and monitored in the institute. The institute is equipped with the best combustion chambers fitted with proper biological protection. At first they present us with the documents that accompany the radioactive sources. We check whether the number marked on each source corresponds to the number recorded in the documents. After the waste has been completely processed, a procedure that may take several weeks, it is transported from the institute in special containers and buried underground. All the information on each individual source is recorded on computer: the date of delivery, the name of the enterprise from which it came, in what form it was delivered, and so forth. Periodically we submit reports to the Committee for the Peaceful Uses of Atomic Energy.

"Many people are asking whether it is possible to close down the storage facility. This question is senseless, because the waste buried in the earth will stay there for ever. The site near Novi Khan has been designated for such burial, and nothing can be changed."

No documentation on the storage facility is available. It is probably buried somewhere in the secret archives. However, there is no doubt that we need this information.

Just as before, the 60-decare site still continues to alarm the local people, despite the fact that the safety conditions are being observed.

Talks With Greece Focus on Balkan Cooperation

AU1303145193 Sofia BTA in English
1807 GMT 12 Mar 93

[Tanya Tsekova report]

[Text] Sofia, March 12 (BTA)—Bulgarian Prime Minister Prof. Lyuben Berov and his Greek counterpart, Mr. Konstandinos Mitsotakis, who arrived on a two-day official visit to Sofia on Thursday [11 March], today had a meeting that lasted more than one hour. The meeting was followed by official talks with the participation of Greek foreign Minister, Mikhail Papakonstandinou, the deputy minister of national economy of Greece, Mr. Aristidis Tsipakos, and other members of the Greek delegation. Bulgaria was represented by Deputy Foreign Minister Valentin Gatsinski, cabinet ministers, and experts.

Both sides share the opinion that the Bulgarian-Greek Treaty of Friendship, Good-Neighbourly Relations, Cooperation and Security, signed in 1991 and ratified in 1992, is a solid groundwork and guarantee for the promotion of Bulgarian-Greek relations, the spokesman for the government told the press after today's official talks.

At the talks Bulgarian Prime Minister Lyuben Berov emphasized that Bulgaria's foreign policy is orientated to this country's integration into the European structures. He motivated the need to guarantee Bulgaria's security in the new conditions in the Balkans and expressed hope that, being a member of all European structures, Greece could help Bulgaria in this respect. Mr. Berov said that he was pleased with the Bulgarian-Greek military cooperation based on the 1991 bilateral military agreement.

Mr. Berov announced that the Bulgarian National Assembly would shortly ratify the 1991 Agreement on the Avoidance of Double Taxation. The question concerning the ratification of this agreement was raised by Greek Foreign Minister Mikhail Papakonstandinou during his visit to Bulgaria in February this year.

The problem of Bulgarians staying and working illegally in Greece was also on the agenda. The sides agreed that the two countries' Labour Ministries should consider a draft agreement to be signed at an early date. The Greek prime minister said he did not mind the presence of Bulgarian workers in his country but insists on making legal arrangements for it.

Some unsettled issues concerning the Zographou Monastery on Mount Athos were brought up, too.

"I have come here to dispel any groundless doubts, if any at all, about Bulgarian-Greek relations, because I am sure that Bulgaria's association with the European Community will create better opportunities for cooperation between our two peoples," Greek Prime Minister Konstandinos Mitsotakis said.

In his opinion, an EC member-country and an EC associated member have many opportunities for the implementation of joint projects financed by the community.

Mr. Mitsotakis expressed the desire of the Greek Government that the two countries maintain an open and continuous dialogue at a high political level because the interests Bulgaria and Greece share in common are much more than the differences between them. He described Bulgarian-Greek relations as a stabilizing factor in the Balkans.

Mr. Mitsotakis expressed his view that the Balkan countries should conduct economic cooperation and open their borders in the way Europe has done. According to Mr. Mitsotakis, Balkan cooperation should be accelerated and busy diplomatic consultations among all Balkan countries should be launched. The Great Powers have always had ulterior motives, therefore the Balkan countries should take their destiny in their own hands, the Greek prime minister said.

The Greek side posed the question if the regulations for the setting up of Greek banks in Bulgaria would be relaxed and received an answer in the positive.

Considering matters of transport, Bulgaria and Greece agreed to appoint a joint commission which should update the bilateral transport agreement signed in 1964.

The Greek side expressed satisfaction with the measures taken to improve the safety of the Kozloduy Nuclear Power Plant. Greece appreciates Bulgaria's efforts to comply with the international environmental requirements and is ready to assist Bulgaria in its talks with the EC on the provision of specific assistance in environmental protection.

As to the removal of offensive arms from their borders, the two sides said that this should be done on a trilateral basis by an agreement among Bulgaria, Greece and Turkey. It is to the interest of peace and security in the Balkans that the three countries start trilateral talks to settle the problem.

In his capacity as acting foreign minister, after today's official talks Prime Minister Lyuben Berov met with Greece's Foreign Minister Mikhail Papakonstandinou. Mr. Papakonstandinou raised the question of the industrial pollution of the Maritsa, Arda and Mesta Rivers which flow from Bulgaria into the territory of Greece. The Bulgarian Government will declare war on polluters and will do its utmost to clean the rivers, Mr. Berov said.

The sides discussed the opportunity of implementing a joint project on the expansion of a Greek port which will be used by Bulgarian ships and of constructing a double-track railway and an up-to-date motorway from Greece to Vidin (on the Danube).

Concerning the Black Sea economic zone, the two sides stressed that it is very important that the Black Sea cooperation assume economic rather than political dimensions. Mr. Berov said that Bulgaria sees the Black Sea Zone as a matter of economic interest only, not as a political union. That is why Bulgaria has categorically refused to take part in any efforts for the establishment of a Black Sea parliamentary assembly.

Mr. Papakonstandinou expressed Greece's readiness to assist Bulgaria in its integration into the European structures.

The Greek foreign minister invited Prof. Lyuben Berov to visit Greece in his capacity as Bulgarian foreign minister in June and take part in the work of the NATO ministerial meeting, proposing, in token of friendship, that the Greek parliament ratify the agreement on Bulgaria's association with the EC during Prof. Berov's visit to Athens.

Today Prime Minister Konstandinos Mitsotakis of Greece had a meeting with Bulgarian National Assembly Chairman Aleksandur Yordanov and the parliamentary groups of the political forces represented in parliament: the Bulgarian Socialist Party (BSP), the Union of Democratic Forces (SDS), and the ethnic Turks' Movement for Rights and Freedoms (DPS). Mr. Mitsotakis's talks in parliament focussed on Bulgarian-Greek relations and the situation in ex-Yugoslavia.

Mr. Mitsotakis's visit is part of the diplomatic activity in the Balkans and an expression of the shared desire of Bulgaria and Greece share for overcoming the Yugo-crisis. Mr. Yordanov said after his meeting with the Greek prime minister. We both agreed that Bulgaria and Greece should not allow the passage of foreign troops through their territories no matter what the purpose may be, Mr. Yordanov said. Bulgaria and Greece stand for bilateral economic contacts in the region, Mr. Yordanov said.

The Balkan crisis should be settled peacefully under the aegis of the international organizations, through a dialogue among the Balkan countries and without any commitment to military actions on their part, BSP leader Zhan Videnov said after the meeting of the Socialist MP's with the Greek prime minister. This position is based on the two countries' determination to give up any claims on territories, minorities and cultural heritage, Mr. Videnov said.

The SDS and the New Democracy Party have similar ideas and orientation, and the closeness between the political organizations helps along the promotion of relations between countries and states, Mr. Konstandinos Mitsotakis, prime minister of Greece and leader of the New Democracy Party, and Mr. Filip Dimitrov, leader of the SDS, pointed out at their talks.

At the meeting with DPS, the Greek prime minister set out the motives of his country not to recognize Macedonia. Mr. Mitsotakis confirmed Greece's position that Macedonia was the creation of the Stalinist regime, besides there were historical prerequisites which could potentially endanger the situation in the Balkans if Macedonia was given recognition under this name. The DPS leaders and Mr. Mitsotakis reached an agreement on direct meetings and contacts between the DPS and the New Democracy Party.

CZECH REPUBLIC

Ministers Cite Environment Reasons for Temelin Approval

AU1203131793 Prague CTK in English
1450 GMT 10 Mar 93

[Text] Government discussions on whether to complete the plant, whose construction began in 1986, had been going on

for nearly a year. After studying various proposals for supplying the region with electrical energy, ministers in Premier Vaclav Klaus' cabinet issued a recommendation on February 16 to complete the plant. The four parties making up the governing coalition also met on the same day and agreed that no fundamental arguments had been made to rationalize halting work at the nuclear power plant.

Klaus, reminded legislators on February 25 of the government's plan to shut down coal-burning power plants in northern Bohemia, which significantly contribute to air pollution in the Czech Republic. He said Temelin needed to be backed as an alternative source of energy.

According to Industry and Trade Minister Vladimir Dlouhy, putting Temelin on line while shutting down polluting coal-fired plants could cut sulfur oxide emissions by 10 percent overall and as much as 23 percent in northern Bohemia. The main investors in Temelin, Ceske Energetické Zavody, estimate that the plant, with an output of 2,000 megawatts, will save 12 million tonnes of coal annually.

Environmental groups both in the Czech Republic and abroad have campaigned against Temelin's operation. They say making existing plants more efficient as well as cutting down on waste would eliminate the need for putting the nuclear power plant on line. Austrian environmentalists charge that the basic reactor, constructed according to Soviet plans, does not meet Western safety standards. The United States has provided 300 million dollars in loans to install additional safety features, to be supplied by the American firm Westinghouse. The Austrian government has strongly protested this act, calling it an unfriendly act on the part of the United States towards Austria.

Klaus told a press conference that all 18 ministers in the government had voted in favor of Temelin, with the exception of Environmental Minister Frantisek Benda, who abstained.

The government has charged Dlouhy and Benda with drafting a law on state control over the safety of atomic power plants. Klaus said he expected such a draft by the end of the month. Dlouhy will have until June 30 to come up with a plan for storing spent reactor fuel produced by the future plant.

Austrian Parties Protest Against Temelin Decision

AU1203142993 Prague CTK in English
2046 GMT 10 Mar 93

[Text] Vienna, March 10 (CTK correspondent)—Reaction in Austria to the Czech Government's decision to complete construction of the Temelin nuclear power plant was swift and negative today.

Criticism was strongest on the part of opposition parties, while the ruling Social Democratic Party of Austria expressed its disapproval in more muted tones. The spokesman for the Free Party of Austria, Peter Rosenstingl, said the hour of truth had arrived and added that this would be a test for Chancellor Franz Vranitzky, who he said had

promised a nuclear free Central Europe both in his electoral campaign and since gaining office.

Rudi Anschober, speaking for the Greens, accused the American Westinghouse corporation, which is to upgrade the power plant and supply its nuclear fuel of wanting to turn the Czech Republic into a nuclear colony.

Josef Cap, on behalf of the ruling social democrats, reminded opposition parties that the Czech Republic is a sovereign state, though he stressed that Austria, whose own constitution forbids the use of nuclear power, would continue to encourage the nuclear Czech Republic to turn to other sources of electrical energy.

President Klestil Warns of Chernobyl Situation at Temelin Plant

*AU1503140993 Prague CTK in English
2207 GMT 11 Mar 93*

[Text] Vienna, March 11 (CTK correspondent)— Milan Uhde, chairman of the Czech parliament's Chamber of Deputies, who is leading a delegation of parliamentarians on a two-day visit to Vienna, took part in the first inter-parliamentary talks between Czech and Austrian legislators here today.

Czech deputies met with Austrian parliament chairman Heinz Fischer. The Czechs and Austrians discussed ways to improve regional cooperation. On the subject of Temelin, the nuclear power plant in southern Bohemia whose completion was approved by the Czech Government Wednesday [10 March], Uhde said he shared Austrian concerns about the project, but stressed that we (Czechs) had no other choice.

Uhde and the Czech deputies later met with Austrian President Thomas Klestil, who repeated Austria's concerns about safety at Temelin and the fear of another Chernobyl-type catastrophe. He offered his government's financial assistance in purchasing desulfurizing equipment for existing Czech coal-burning plants in northern Bohemia.

Austrian Chancellor Franz Vranitzky, a staunch opponent of Temelin, said on Austrian Radio today that there were still ways to halt Temelin's construction, as its completion depended largely on the Czech Republic's receiving credits from abroad, notably from the World Bank. He said Austria had proposed converting Temelin into a gas-operated plant and was willing to provide the necessary financing, but its offer was not taken seriously by the Czech Government.

Aside from this contentious issue, Vranitzky pledged Austria's support in the Czech Republic's quest to join European bodies, including the European Community, which Austria itself expects to join within three to five years.

In the Czech parliamentarians' meeting with Vranitzky, special attention was paid to the development of regional cooperation. This, however, requires resolving the administrative setup of the Czech Republic.

Havel Defends Decision To Complete Temelin Nuclear Plant

AU1503192693 Vienna Oesterreich Eins Radio Network in German 1700 GMT 15 Mar 93

[Alfred Schwarz report]

[Text] The state visit to Austria by Czech President Vaclav Havel today and tomorrow is characterized by one major topic: the controversial Temelin nuclear power plant in southern Bohemia, only 80 km from the Austrian border. The construction of the nuclear power plant was started in 1986, at a time when the CSSR still existed and the communists were still in power. Yet, all attempts—particularly by Austria—to prevent the neighbors in the Czech Republic from completing the nuclear power plant have come to nought. Last week the Czech Government decided to go ahead with the construction. President Vaclav Havel met with President Thomas Klestil in Vienna today.

Amid visible unease, Czech President Vaclav Havel defended his government's decision to complete the construction of the Temelin nuclear power plant and not to convert it into a gas power plant, as suggested by Austria. The Czech government would no longer start the construction today, Havel pointed out. The semifinished nuclear power plant is a relic from the communist era.

[Begin Havel recording in Czech with superimposed German translation] I quite understand the concern of the Austrians. However, the nuclear power plant has been nearly completed. It is a relic of the past regime. Our government has carefully and responsibly taken into consideration all aspects and has come to the conclusion that it is best to start operating Temelin while observing all international safety standards. [end recording]

President Klestil explained Austria's objections to Temelin. This is all he can do, he stated. Neither he nor Vaclav Havel can make decisions on nuclear issues in their countries, Klestil stressed.

As far as the second important question—compensation for the Sudeten Germans who were expelled after World War II some of whom now live in Austria—is concerned, Havel provided a clear reply. The Czech Republic has made every possible effort to make up for the injustice committed by the communist regime. Yet, the injustice committed by the precommunist democratic government after World War II when it expelled the Sudeten Germans cannot be made good by the Czech Republic today, he stressed.

SLOVAKIA

Meciar Says Nation To Abandon Klaus-Style Reform Policies

*AU1103173793 Prague CTK in English
2138 GMT 7 Mar 93*

[Text] Bratislava March 7 (CTK)—Slovak economy ministers and experts agreed at their four-day meeting in Stara

Tura, west Slovakia, that Slovak society will be market-oriented and will respect the character of social and environmental measures, Slovak Prime Minister Vladimir Meciar said on Slovak television today.

He stressed that it is the social character of economic reform which makes it different from Czech Prime Minister Vaclav Klaus's conception.

At a meeting of the Movement for a Democratic Slovakia (HZDS) on Wednesday [3 March], Meciar said Slovakia was abandoning the Klaus-style reform of economic policy which, he said, had caused a 30-percent economic decline in Slovakia.

In his regular television address, Meciar said that it is necessary to halt Slovakia's economic decline, and called on all citizens, institutions and enterprises in Slovakia to cooperate in an effort to halt the unfavorable development.

The government cannot make it all by itself, Meciar said.

Emphasizing the need for balance and stability of the Slovak currency, he characterized Slovak money as very lazy, and added that people must learn to economize with it.

According to Meciar, the representative of the International Monetary Fund (IMF), Jacques de Groot, whom he met in Stara Tura, expressed satisfaction with the state of Slovakia's economic policy. He also admitted, according to Meciar, that IMF representatives made a mistake during their visit to Slovakia because the data they had at their disposal assumed a worse state of the Slovak economy.

Meciar was referring to the visit by an IMF delegation, which arrived in Bratislava 15 February to discuss a loan of \$100 million and other questions with the Slovak Government and representatives of the National Bank of Slovakia. The sudden interruption of the talks on 20 February was believed to have been caused by disagreement over the Slovak currency's devaluation.

Government Letter To EC Decries Hungary's Gabcikovo Dam Stance

LD1203230193 Prague CTK in English
2245 GMT 12 Mar 93

[Text] Bratislava March 12 (CTK)—Hungary would contribute to resolving the conflict between Slovakia and Hungary over the Gabcikovo dam project on both countries' joint border, by annulling a motion by its parliament that only allows Budapest to negotiate with Bratislava over the dam's liquidation and the restoration of the countryside to its original state, Slovak Parliament Chair Ivan Gasparovic wrote today in a letter to the head of the European Community Commission, Egon Klepsch.

Relations between Hungary and Slovakia have become tense over the last few months since Bratislava's determination to finish construction of the dam, begun by Hungary and the former Czechoslovakia in 1977. Hungary has since stopped construction on its part of the dam and fears Slovakia will alter the course of the Danube, which forms the border between Slovakia and Hungary, and cause

damage to the environment. The matter is now to be passed to the International Court of Justice in The Hague.

Slovak television reported today that Gasparovic's letter is a reaction to a February 24 declaration made by the Hungarian parliament to United Nations members, which, according to Gasparovic, misrepresents the dispute and accuses Slovakia of violating Hungary's territorial integrity. I am obliged to inform the international community that the territorial integrity of the Hungarian Republic was in no way touched and that the state border between our two republics was not altered, Gasparovic wrote.

He added that returning the countryside to its original state, as demanded by Budapest, was impossible, according to experts, and could even mean an ecological catastrophe. Gasparovic stressed that Hungary had unilaterally and unlawfully renounced the 1977 agreement binding the two sides to building the dam.

Gasparovic Responds to Hungarian Declaration on Gabcikovo Dam

AU1603213393 Bratislava NARODNA OBRODA in Slovak
13 Mar 93 p 3

[Letter by Ivan Gasparovic, chairman of the National Council of the Slovak Republic, to Egon Klepsch, chairman of European Parliament; date not given]

[Text] Bratislava—It is a well-known fact that several days ago the Hungarian Parliament issued a declaration addressed to all parliaments of the world, in which it called for solidarity in the matter of an alleged aggression by a neighboring state regarding the diversion of the Danube waters into the navigational and energetic system of the Gabcikovo water dam. Ivan Gasparovic, chairman of the National Council of the Slovak Republic, has reacted to the declaration of Hungarian Parliament by having sent a letter to the chairman of European Parliament, which we are publishing in full:

Dear Mr. Klepsch,

On 24 February 1993, Hungarian Parliament addressed the legislative organs of the UN member countries with a declaration in which it brought untruthful information on the problems connected to the project of the Gabcikovo-Nagymaros water dam system and accused the Slovak Republic of having grossly violated the territorial integrity of Hungary.

On this occasion, I am taking the liberty to remind you that it was the Hungarian Republic who was the first to stop the works and then unilaterally, and in defiance of the law, to abrogate the valid treaty on the joint construction of water dams—the treaty of 16 September 1977 (registered and published in the UN Treaty Series, Vol. 1109, 1, 17134)—in defiance of the fact that the technical projects had been jointly drafted with Hungarian experts, and the protection of the landscape and waters was solved on the level of the then-known facts. The abrogation of the treaty was even more surprising, since it was adopted only three months after a protocol on the acceleration of the construction of the Gabcikovo-Nagymaros water dam system had been signed—

on the incentive of the Hungarian Government—in February 1989. By this behavior, defying the law, Hungary endangered its reputation as a reliable contracting partner and put in doubt its sincere determination to act in conformity with the principles of a law-abiding state.

After the abrogation of the 1977 treaty, the Czech and Slovak Federal Republic was forced—as injured party—to take steps on its territory to prevent economic and ecologic damages. It did so while not changing the material substance of the 1977 treaty. On 24 October 1992, after all possibilities to jointly continue the construction had been exhausted, it dammed the Danube bed on its own territory, according to the project known as the alternative "C." This alternative was implemented as a defense measure against the law-defying unilateral action, taken previously by the Hungarian Government.

Contrary to these facts, the Hungarian Republic is constantly accusing the Slovak Republic of violating international law. In their arguments, they are also raising accusations regarding the alleged violation of Hungary's territorial integrity in an unprecedented manner, endangering the rights of the Hungarian minority in Slovakia, and describing the Slovak Republic as an aggressor!

I am obliged to inform the international community about the fact that the territorial integrity of the Hungarian Republic has not been violated in the slightest, and the state borders have not been moved at all. In conformity with Article 19 of the 1977 Treaty, only the navigable route was moved to the derivation channel and the borders have been preserved exactly as defined in Article 22 of the said treaty. I am also rejecting other accusations.

The interest of the Slovak Republic is to find political and legal ways of resolving the existing situation in the spirit of the recommendations by the European Community, which calls on both sides to take well-considered stances. I am sorry to have to say that the introduction to the said declaration of Hungarian Parliament does not conform to that spirit. The Slovak Republic does not want to and will not proceed in a similar manner. It is highly important for the young Slovak Republic that this problem should not burden the relations with its neighbors and to even more complicate the already-complicated political and economic situation in Europe. We are interested, and we want to cooperate with Hungarian experts on the solution to the Gabčíkovo-Nagymaros problem in a constructive manner on the basis of factual ecological and technical arguments. We have established a parliamentary commission supervising the course of action taken by our government in that matter. This commission is prepared to establish direct working contacts with a similar commission of Hungarian parliament. Such a commission, however, had not been established as yet.

We are viewing the current situation as a fight of the Hungarian Republic for its own political prestige, disregarding the factual substance of its cause, unfortunately. There is more at stake than national pride or diplomatic or legal prestige. The security and stability in Central Europe is at stake, in the interest of which it pays to sit at the

negotiating table as long as there is no material solution. The controversy began by arguing about the ecological impact of the water dam; let us return the problem there, then. Let scientists and technicians think how to most efficiently secure the ecological balance between the land and this technological object, an object that is not only a source of energy, but that also has antiflood and navigational function (channel Main-Rhine-Danube).

I want to assure the international community that the Slovak Republic is vitally interested in efficiently protecting vast riches in the form of underground sources of drinkable water on this territory. This problem was solved by the joint commission of Slovak and Hungarian scientists and technicians, simultaneously with the construction of the water dam. Since the contacts were cut off in 1989, we have lost a lot of time.

Our side has been constantly proposing that, in view of new facts, the environmental problems should be jointly specified and a project for their solution drafted and implemented. The Hungarian side refused, and is still refusing, to accede to joint monitoring; it has not accepted to cooperate within the PHARE [Economic Reconstruction Aid for Poland and Hungary] project or to join search for adjustment to the technological solution which—on the basis of the results of a thorough research—would prevent any fears.

We are prepared to renew the activity of the joint ecological and technological commission of experts. We are prepared to jointly observe the changes in the regime by monitoring the agreed-upon parameters and to take steps to keep these parameters within limits. This monitoring has been done only on the territory of the Slovak Republic, so far.

A condition for searching for material solutions would be to cancel the declaration of the parliament of the Hungarian Republic. This declaration that does not allow the Hungarian Government to discuss anything other than about the destruction of the water-dam project and restoration of the original state of the landscape, which would mean an ecologic catastrophe, and is not technologically feasible at all—according to the results of studies. We have jointly drafted the project and began its construction, so we also should jointly complete it, in conformity with the interests of both republics and the international community.

Delegation Will Not Sign Gabčíkovo Agreement in Brussels

LD1903092793 Prague CTK in English
0748 GMT 19 Mar 93

[Text] Bratislava, March 19 (CTK)—Slovak delegation will not travel to Brussels on Friday to sign an agreement submitting the Slovak-Hungarian dispute over the Gabčíkovo hydroelectric project on the Danube to the International Court of Justice in The Hague, commissioner of the Hungarian Government Gyorgy Tatar said last night.

Speaking with the Hungarian minority daily "UJ SZO" Tatar said that Hungary would welcome information about the specific changes the Slovak Government would like to make in the joint Slovak-Hungarian request.

Spokesman for the Hungarian Government Janos Herman told "UJ SZO" that he had known the fact that Slovak delegation would not go to Brussels since Thursday morning, and that he did not see any reason for Hungarian Foreign Ministry State Secretary Janos Martonyi travelling to Brussels. Martonyi is responsible for the Gabcikovo issue.

UJ SZO says that the two countries have agreed to continue their talks about the joint request next week.

The European Community (EC) called on Slovakia and Hungary to sign in Brussels Friday their joint request to the International Court of Justice in The Hague concerning their dispute over the Gabcikovo hydroelectric project on the Danube.

Tatar said Thursday that Hungary had accepted the EC proposal.

HUNGARY

Socialist Party Chairman Views Regional Cooperation

AU1703204993 Budapest MAGYAR HIRLAP
in Hungarian 13 Mar 93 p 3

[Interview with Hungarian Socialist Party Chairman Gyula Horn by Ivan Scipades; place and date not given: "It Does Not Work Without the Left"]

[Text] The Hungarian Socialist Party [MSZP] has reasons to count on better results in the next elections than in the last elections held in 1990—MSZP Chairman Gyula Horn said in his interview with MAGYAR HIRLAP. He thinks it is important that no important political decision should be made without the left and that professional knowledge should prevail in the next government. According to Horn's prognosis, the road toward a new Eastern-Central European integration involving some 20 countries is leading through sub-regional cooperation.

[Scipades] You criticized the right-wing conservative parties at the recent conference on stability in Eastern-Central Europe, and you spoke about the failure of shock policy. Does this mean that you hope that the socialists will gain ground at the next elections scheduled for 1994?

[Horn] At the congress of the Socialist International held in Berlin in September 1992, [Austrian Chancellor] Franz Vranitzky also said that fierce capitalist methods do not represent an adequate way for Eastern-Central Europe, because these methods do not permit the creation of a social partnership. Therefore, in the period of transition, we need a policy that adjusts to the conditions prevailing here, and the conservative right-wing parties are unable to present such a policy.

[Scipades] You stressed that one must not conduct a policy without compromises, a policy striving for unilateral advantages, and you mentioned the Bos affair in this regard. In your opinion, is the Hungarian Government's Bos policy such a compromise policy?

[Horn] I do not know what other agreements does the Hungarian Government regard as possible with the Slovaks,

in addition to the efforts connected with the EC and the International Court in The Hague. The Bos-Nagymaros issue is a bad heritage, but we cannot expect the Slovaks to destroy the Bos project for our sake. We must find a solution that will maximally guarantee the Hungarian interests, including the ecological ones, and is also acceptable for the other side.

[Scipades] This sounds nice, but the MSZP has not yet come up with a proposal that would replace last year's parliamentary decision demanding total submission to the Slovak requirements either.

[Horn] It is not advisable to come up with a separate party-level proposal because, just like in major foreign policy issues, we must maintain the six-party consensus in the Bos problem too. However, the MSZP formulated concrete proposals at the restricted talks summoned by the prime minister with the participation of parliamentary faction and committee heads. The government also has quite a few former or current members who are urging for new solutions. However, politics should decide on every compromise.

[Scipades] What is your opinion about the increasing government manifestations that openly aim at the possibility of Hungary's demand for a peaceful modification of the borders?

[Horn] Whether some people want to bring up the issue of borders in a peaceful or violent way today, this could only lead to further conflicts. Anyone who comes up with the revision of the Trianon Agreement in the current explosive situation in Eastern-Central Europe would only seriously harm our national interests. The bilateral basic treaties should declare the inviolability of borders, and they should also declare that every country is obliged to maximally guarantee the rights of national minorities living on their territory.

Minister Will Not Attend Brussels Meeting on Gabcikovo

LD1903111993 Budapest Kossuth Radio Network
in Hungarian 0500 GMT 19 Mar 93

[Text] It is Hungary's opinion that Slovakia is delaying the signing of the Hague International Court's submission declaration because it wants to define the schedule for the settlement of the Gabcikovo dispute itself. It is believed that the Bratislava government will address the issue again in four days, at the earliest.

Since Bratislava turned down the European Community's suggestion to have negotiations today, the Hungarian foreign affairs state secretary [Janos Martonyi] will not travel to Brussels either.

POLAND

Security Service Arrests Uranium Dealers

AU1103134793 Warsaw ZYCIE WARSZAWY in Polish
8 Mar 93 p 1

[Piotr Adamowicz, Piotr Wysocki report: "Office for the Protection of the State Arrest Uranium Dealers"]

[Text] Three inhabitants of the Gdansk-Gdynia-Sopot urban area (they are all about 50 years old) attempted to sell radioactive materials for about \$125,000 dollars. They were arrested in an apartment bloc on Morska Street in Gdynia on Friday [5 March]. One of them is a former Security Service functionary. The Gdansk agency of the Office for the Protection of the State [UOP] learned about the sale of the radioactive material using operational methods, as we were told by circles close to the Ministry of Internal Affairs.

"A defectorscope weighing 6 kg encased in metal and bearing warning markings indicating that it contains dangerous radioactive material was confiscated along with some highly radioactive uranium oxide 238," is what Gdynia District Prosecutor Janusz Kaczmarek told ZYCIE.

The prosecutor declined to supply any other details. He only confirmed the fact that the three were being held in temporary detention.

The head of the Gdansk UOP agency, Major Adam Hodysz, also refused to discuss the details of the operation and only confirmed that it had taken place.

ZYCIE was able to find out that the level of radioactivity of the half a kg of uranium oxide 238 in powder form was several hundred times above the safe level. The three people arrested had kept it in a plastic bag. "If it had gotten into the ground," our contact told ZYCIE, "it would have been practically impossible to eliminate the contamination."

The confiscated radioactive material has been taken to a Warsaw institute where, following detailed tests, it will be possible to ascertain its origins. An initial suspicion is that it was brought to Gdynia from one of the states of the former Soviet Union.

Government To Receive EC Aid for Environment Protection

LD1103204793 Warsaw PAP in English 2036 GMT 11 Mar 93

[Text] Warsaw, March 11—Poland is to receive 18 million ECU [European Currency Unit] in European Community assistance in the development of her environmental policy, under the terms of a Polish-EC memorandum signed in Warsaw on Thursday.

Minister for Environmental Protection Zygmunt Horanowicz told reporters that the agreement, funded through the EC "Phare" programme, would be used to support a system of resource management and investment.

Of the total, 5 million ECU would be allocated to assist in the implementation of the governments environmental protection policy, and 12 million ECU would be used for investment in selected projects, either as grants, or as loans granted both on a preferential and a commercial basis. The remaining 1 million ECU is to be used for technical support.

Alexander Dijckmeester, representative of the commission of the European Communities in Warsaw, said that in his opinion, the funds should be used to reduce the emissions of poisonous gases, and for the protection of water and woodland resources.

ROMANIA

Premier Reiterates Commitment to Reform, Market Economy

AU1103171093 Bucharest ROMPRES in English
1633 GMT 11 Mar 93

[Text] Bucharest, 11/3/1993 (ROMPRES)—At the opening of the Thursday, 11 March joint session of the Romanian Parliament's houses, Premier Nicolae Vacaroiu answered questions asked by deputies and senators during the two houses' joint sitting of Tuesday, 9 March when Parliament debated the government's programme defended by Prime Minister Vacaroiu on 4 March.

Among the main unfavourable trends that over the almost three years of reform had brought the economy of Romania to a state of grave depreciation at the time the present cabinet came to power last November, the premier named the deterioration of contract relationships between firms; the ever growing financial and currency indiscipline; the constant undercapitalisation of state-owned companies; the perpetuation of non-performing credits.

Under the circumstances, the government has given priority to easing and eliminating these "very grave" trends by several government resolutions and draft laws proposed to Parliament.

The premier dwelt on the falling rate of exchange of the national currency and on the need to stabilise it by boosting export which could solve the deficit of the export-import balance.

The executive, the premier explained, was and is deeply concerned with securing the supply of basic products to the domestic market, for which purpose tax reductions have been temporarily granted for certain imports.

The government has never ceased to give its all attention to reducing assessed taxes and increasing excise taxes, to diminishing inter-company arrears and eliminating from the economic circuit factories which, producing for stock, block financial circuits.

A proof of the executive's main lines of action is mirrored in the 70 bills forwarded to Parliament, of which 22 were laid for urgent debate, such as the bills on profit taxes, customs dues, excise, value added tax, bankruptcy, stock exchange.

Describing the present state of Romanian economy, the premier mentioned as a positive trend the growth of industrial production in January-February 1993. He rejected the assessment made by some parliamentarians that the budget and currency deficits in December 1992 were imputable to his government as well as the accusation that the government reportedly made pressures upon the National Bank of Romania. He strongly refuted the idea that the government did nothing to fight corruption which, he said, was an extremely complicated phenomenon that required long-term actions.

Tackling agriculture, the premier named the measures taken to back the development of this sector: sales of farm

machinery on credit, supply of fertilizers, higher purchase prices for cereals, the irrigation of another million hectares (2.5 million acres).

Speaking of the subsidy cuts to basic consumer products and services, and to the enforcement, with effect from 1 July 1993, of the value added tax, the prime minister gave assurances that the necessary measures are being considered to buffer their economic and social impact.

Concluding, Premier Vacaroiu said the reform strategy defended in the today's sitting was an elaboration of the government programme proposed in November 1992 after investiture. He reiterated his cabinet's unequivocal option for a market economy and social protection and argued that the suspicions of dirigism were ungrounded and that the state's intervention in the economic and social life of the country was still necessary to a certain extent at this stage of the transition period. The state will exercise its control not by administrative measures or prices, but by actuating market mechanisms, financial, currency levers, with the prime purpose of stimulating productive activities on an austerity budget.

The premier ended his address requesting Parliament's support and remarking that the executive assumed full responsibility the very moment it was invested, which makes it unnecessary for it to ask for a new vote of confidence.

Survey Provides Statistics on Distribution of Farmsteads

*AU1503112493 Bucharest ROMPRES in English
0823 GMT 15 Mar 93*

[Text] Bucharest, 15/3/1993 (ROMPRES)—“Romania's agriculture is actually in a disastrous condition. It is obvious

only now that the idea of giving the land back to those who possessed it before cooperativization or to their descendants was an idea promoted in disregard of consequences,” told magazine CAPITAL Tiberiu Muresan, president of the Romanian Academy of Agricultural and Forestry Sciences. “My institution has recently completed a sociologic inquiry that covered 500 villages across the country. The inquiry shows that there are one million more land owners in Romania now than prior to the cooperativization (6,200,000 as compared to 5,300,000 in 1948). The academy president thinks it is worrying that in most of the rural farmsteads (56.7 percent) the workers' average age is past 60 years.

The inquiry also shows that the application of the Land Law generated the following distribution of farmsteads according to the size of farm areas: 2.5 percent landless, 25.9 percent land properties of up to 1 hectare, 37.7 percent between 1-3 hectares, 19.3 percent between 3 and 5 hectares, 14.6 percent between 5 and 10 hectares. Tiberiu Muresan says the statistics demonstrates the crumbling of the Romanian agricultural land property, while the developed countries have achieved agricultural growth through extended land properties.

Another negative aspect shown by the inquiry is that most of the farm land owners (43.1 percent) live in urban localities, 39.1 percent are employees and pensioners and only 17.8 percent are farmers. Consequently, wide expanses were left untilled in 1992. The remaking of the right of land ownership and the introduction of a land lease system are proposed as remedies for halting the further crumbling of the peasant farmsteads.

ARGENTINA

Arsenic Poisons Water Supplies in Some Provinces

PY0903213393 Buenos Aires BUENOS AIRES HERALD
in English 9 Mar 93 p 8

[Article by Peter Johnson]

[Excerpt] As if cholera was not enough, some Argentine provinces have to cope with an even more insidious component in their well water: arsenic. Although the problem also exists in parts of Chile and in places as far away as Taiwan, certain regions of Argentina have the dubious honour of holding the world record for the highest concentration of this substance in their water supply. The World Health Organization has stipulated that the maximum permissible level is 0.05 milligrams per litre of water, yet in some areas of the provinces of Cordoba, La Pampa, Salta, Chaco and Santiago del Estero this limit is exceeded five to 20 times over.

Arsenic poisoning has led to a significant number of patients in Argentina with what is termed HACRE disease (the Spanish acronym for chronic regional endemic hydro-arseniosis). Doctor Alberto Woscoff, a professor and the director of the school of dermatology at Clinicas hospital in Buenos Aires told the HERALD yesterday.

Symptoms include a gradual blackening of the back of hands and a thickening of palms and soles of feet. This eventually leads to skin cancer. The lower digestive tract can also be affected by cancer after lengthy exposure. The arsenic content in water is not the result of man-made pollution, but rather a natural consequence of the geology of certain areas.

Cordoba appears to have been the only province to have done something about arsenic poisoning, building pipelines to carry uncontaminated water to those regions with a high arsenic content in their own water supply. Since the introduction of these, there has been a considerable drop in the number of observed cases in those areas. Despite this heartening fact, and due to the large number of areas that will never be connected to a fresh water supply, the problem persists. Strangely, according to Woscoff, Italian immigrants to the province have been the most susceptible to arsenic poisoning although no reason for this has been yet discovered. [passage omitted]

BRAZIL

Sao Paulo Factory Produces Ecological Gas To Replace CFC

PY1703024793 Sao Paulo FOLHA DE SAO PAULO
in Portuguese 8 Mar 93 Economic Section p 1

[Article by Jose Roberto Campos]

[Excerpt] Brazil this year will no longer appear on the ecological map as a place where environmental devastation reaches alarming levels. Since January the country has been home to the first factory in the world of the German Hoechst group to produce, on an industrial scale, a gas that replaces CFCs (chlorofluorocarbons), the substance which is highly destructive to the ozone layer.

Some 700 metric tons of Reclin 134-A, a commercial name for hydrofluorocarbon, will come out this year from the Hoechst unit in Suzano (SP) [Sao Paulo]—the only unit existing in the southern hemisphere, to supply the German market. [passage omitted]

Former Nuclear Official Denies Bomb Project

PY1203225793 Sao Paulo VEJA in Portuguese
10 Mar 93 pp 7, 8, 9

[Interview with Brigadier Hugo Piva, former director of the CTA, Aerospace Technical Center, by Joao Fabio Caminoto, at his office in Sao Jose dos Campos; date not given]

[Text] *[Caminoto] During your professional time at the CTA [Aerospace Technical Center], did you ever feel that the Brazilian Government wanted to build a nuclear bomb?*

[Piva] There were times when tension with Argentina was rather unpleasant, and we sort of blew the dust off the files that contained the technology for possible military use. I recall that before the time of General Galtieri [former de-facto Argentine president 1981-1982] there were rumors that Argentina had the bomb and a missile. We were concerned, but rumors immediately faded and we did not make any decision. We wished the tension had continued, because we would have received a higher allocation for our work.

[Caminoto] Did Brazil try to build the bomb?

[Piva] Brazil has always been very prudent and never wanted to produce a bomb. Our country badly needs energy and we are about to use up all our hydroelectric potential. This is why we invested in nuclear energy, which appeared to be the solution to the world's energy problem. Although many referred to our work as a parallel project—to which many people have attached military connotation—we filled a demand from the Brazilian scientific community.

[Caminoto] Was there ever a project to build the bomb?

[Piva] No. We carefully kept secret the technologies that could have military applications, for use in case of necessity. The same thing was said when we announced that we intended to build a satellite launch vehicle, the VLS. It was said that we did it for the sole purpose of developing a ballistic missile. That was not the case. We wanted to develop the technology to have, whenever we needed it, the capacity to build a missile.

[Caminoto] Would it have been easy then to produce a bomb?

[Piva] If things worked that way, elementary school children would never be taught mathematics, because maths is essential for any military development. We cannot stop the development of a nation just because that development could be applied to military technology. I am sure that half the cases of murder in the Third World are perpetrated with kitchen knives. Yet this is no reason to forbid housewives to have knives in their kitchens.

[Caminoto] Could Brazil have managed to manufacture the bomb during the past decade?

[Piva] It could have, but there was no interest.

[Caminoto] Are the conditions currently right for that?

[Piva] If other countries can, why not us? But there is no need.

[Caminoto] You sponsored the VLS which should have transported the Brazilian satellite to space. Did you feel frustrated when an American rocket carried out the mission?

[Piva] I felt very satisfied because, in the end, our satellite was launched. However, I think we should have made a greater effort and launched it with our VLS which could have been ready long ago. We have all the necessary resources to launch our rocket and it would have been much cheaper than the American. It would have cost \$7 million, while we paid \$12.1 million.

[Caminoto] How long ago could the VLS have been ready?

[Piva] The Brazilian space program was admired by the whole world. No other country made as much progress with such few people and with so little money. We did not receive any essential aid from anyone for that program. We developed everything—propellants, special materials, space technology, calculus methods—from scratch. The creation of the Sonda 4 began to bother everyone. It was boycotted by the whole world. They feared we would have military applications for it, which is just an excuse because Brazil does not have any militarist vocation to conquer anything. We did not declare war, we solved our border problems peacefully. Others have solved their problems by force and still have not changed. We, the underdeveloped, are the ones who should have the right to prohibit weapons because others use them unwisely.

[Caminoto] How did the boycott affect you?

[Piva] Each technological triumph caused concern. The first was when we managed to make solid propellant. In the beginning they exported the raw materials to us, almost free, because they could not believe we would get there. When they saw we had developed the propellant they began restricting the supply of raw materials to make the propellant. Then we managed to manufacture the raw materials. We then developed the technology needed to produce the special steels needed for the construction of great rockets; which few countries master. That caused great surprise.

[Caminoto] Do you consider the VLS development program has failed?

[Piva] I would not call it failure. I think the space program was betrayed by the Brazilian Government. Those who criticized it are responsible.

[Caminoto] You maintain that mastering advanced technology is the measure of the degree of sovereignty of a country. Has our sovereignty been threatened?

[Piva] I think so, yes. We have been weakened. Since the last administrations, since 1986, there has been a surrender that affects the future of our country. That could be changed, but it will take at least 20 years of hard work. Ours was a first world team, now we are behind.

[Caminoto] Is the Brazilian satellite outdated?

[Piva] I would not say that. It is simple. We launched a cheap satellite as a matter of prudence. With the PRC we are developing a more sophisticated satellite.

[Caminoto] Was the VLS just a pretence to build a ballistic missile?

[Piva] We are paid by the people to defend the country. There was a feasibility study. If ordered to do so, we could make a missile, but only under that situation. It was never started. We could have built one had it been ordered, it would not have been a problem.

[Caminoto] Hypothetically, if the Brazilian Government had the technology it could have used it for military purposes if necessary?

[Piva] Those are very strong words. We wanted to develop the technology because it would bring about national development. Brazil needs space. Our continental dimension, our inaccessible regions, our dependence on agriculture and on forestry make us highly dependent on space information. We need an earth observation satellite to control our borders. It is a national sovereignty issue.

[Caminoto] How could a Brazilian rocket help in this program?

[Piva] There are many scientific missions and applications that require very special small satellites flying in low orbits. Brazil could have fulfilled that requirement. The U.S. rocket that carried the Brazilian satellite will fill that market. It will capture the market we wanted.

[Caminoto] Do you know if Russian scientists were contracted to develop rocket propellants at the CTA?

[Piva] I heard something about that at the beginning of the Collor administration, but it was just that. I do not know any more details.

[Caminoto] What is the status of advanced research in Brazil?

[Piva] The Collor Government was very negative toward the scientific research area and toward advanced technologies. He ended research in our country, and that is an irreparable crime. A team of scientists can be disbanded in five or six months. Training a scientist takes at least seven years. We lost 20 years, because the country went backward. We have to begin again, regaining international credit. No one believes in Brazil any more.

[Caminoto] Should Brazilian industry return to the world weapons market?

[Piva] Yes, because Brazil has stopped in that area. We need the weapons industry because it is a sophisticated area that promotes other industries. Brazil today exports products that are manufactured as a result of the technology that the weapons industry brought to the country. We could have all of our industrial capacity involved in the weapons industry. In case of military mobilization, we would only have to reverse the flow, channeling production toward our own needs instead of selling our products abroad. To buy weapons is the worst possible deal because you transfer a lot of money abroad to create jobs and promote advanced

technology somewhere else. In a military conflict, you can only buy the weapons that your supplier wants to sell you. To maintain that the country does not need the Armed forces is nonsense. Never in the history of mankind has any nation done without its Armed forces. A nation either has its own Armed Forces or remains under the rule of the Armed Forces of its neighbor.

[Caminoto] Did the Iraqi Government pay all it owed you?

[Piva] No. We had what amounted to a current account. We did many things for them, and at that time the balance was in our favor. Unfortunately, they could not pay because of the boycott.

[Caminoto] You have always maintained that your activities in Iraq were limited to developing a small air-to-air missile. Many people say that your work went far beyond that, including the modification of Scud missiles and contributing to nuclear development. Is that true?

[Piva] Iraq was a privileged partner of Brazil. The Brazilian Government strongly fostered those deals. I did not go there on my own account. I began the contacts when I was on active duty, with an official mission in 1979. I did not transfer any technology that I received from abroad; everything was developed in Brazil. I did not develop any sensitive technology for use in nuclear ballistic missiles. The air-to-air missile was something that they could buy as they wished. They had hundreds of missiles: U.S., French, Russian.

[Caminoto] Did Brazil export sensitive technology to Iraq?

[Piva] As far as I know, we only exported uranium ore, on which there is no restriction.

[Caminoto] And enriched uranium?

[Piva] I can assure you we did not.

[Caminoto] Should all technological projects be handled in a way that is totally clear to society?

[Piva] I don't think so. There are sensitive issues that cannot be made public to neighbors or commercial competitors. The same thing happens in the United States.

[Caminoto] What do you think of the proposed demilitarization of the Brazilian space program?

[Piva] The program is not militarized. It is being handled by military men because the CTA, which belongs to the Air Force, happens to be the most advanced center, but most of the technicians and engineers are civilians.

[Caminoto] You are known to have delivered secret lectures to high-ranking Libyan officers in the desert.

[Piva] Some 10 years ago I participated in secret lectures on the use of advanced technology in military undertakings, when Brazil and Libya had good relations. The Libyans gave almost unrestricted diplomatic support to Brazil. It was a friendly country. That was long before the beginning of international terrorism.

[Caminoto] Did we transfer technology to Libya?

[Piva] No. We only sold Engesa [Specialized Engineers, Inc.] vehicles.

[Caminoto] Are you being spied on?

[Piva] I don't feel I am being spied, because they know very well how to do things. I believe that after such a long time there is no reason to worry about me.

[Caminoto] Some of your colleagues say they were betrayed by your leaving the Air Force, because you began to make money from what you learned as an active officer. What do you think of that?

[Piva] I left the Air Force, but not of my own will. I devoted all my life to my work as active duty officer. I was not promoted to a four-star general, and I was sent into retirement. Officers are picked for promotion to the rank of general. Minister Moreira Lima, who selected the officers, picked other people. I no longer help because the Air Force does not invite me. Besides, all my commercial activities were endorsed by the Brazilian Government.

[Caminoto] In 1990, President Fernando Collor closed a hole in the Caximbo mountain range, in Para, which had been drilled for nuclear tests. Were you one of the coordinators of that secret program?

[Piva] I am in the military reserve, I still have military status, and the government has already expressed its official position on the subject clearly and with the participation of several scientists. I have nothing to add.

[Caminoto] A military man who has information about a nuclear bomb project should under no circumstances talk about the matter?

[Piva] Of course not.

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Japan To Provide Funds for Tiete River, Guanabara Bay Pollution Cleanup

*PY1203204793 Rio de Janeiro Rede Globo Television
in Portuguese 1600 GMT 12 Mar 93*

[Excerpt] Japan will help clean up the polluted Tiete River in Sao Paulo as well as Guanabara Bay in Rio de Janeiro. An agreement signed this morning between the Brazilian and Japanese Governments provides for the release of \$840 million—almost 20 trillion cruzeiros—for those projects.

The agreement was signed by Foreign Minister Fernando Henrique Cardoso and Japanese Ambassador to Brazil (Yasushi Morazumi). The Japanese Government will transfer \$840 million to the state governments of Rio de Janeiro and Sao Paulo. Governors Leonel Brizola and Luiz Antonio Fleury Filho participated in the ceremony at Itamaraty Palace. Some \$270 million will be used in the construction of a sewage system to clean up Guanabara Bay in Rio de Janeiro.

The remaining \$570 million will go to Sao Paulo to clean up the Tiete River and for the construction of a garbage reprocessing plant.

With guaranteed financing, the governments of Rio de Janeiro and Sao Paulo will begin setting up the first biddings for the initiation of projects in May or in June at the latest. It is expected that the Japanese funding will begin arriving at the beginning of the second half of the year. [passage omitted]

CHILE

Energy Commission Chairman Advocates Nuclear-Free Policy

*PY2612012492 Santiago EL MERCURIO in Spanish
21 Dec 92 p C5*

[Report by Ivan Fredes Guerrero from Temuco]

[Excerpt] Jaime Toha, chairman of the National Energy Commission, has advocated a national policy that does not propose any construction or operation of nuclear plants as an alternative to meeting Chilean energy needs.

Toha said that the current administration does not plan to build nuclear plants because of their high cost and their impact on the environment. He emphasized the importance

of drafting a government policy that does not contemplate such a possibility either in the short or medium term.

Toha added that Chile has enough means to meet its energy needs through the use of hydroelectric, thermoelectric, and geothermal resources, among other alternative sources of energy. [passage omitted]

High Red Tide Contamination Levels Reported

PY1703033993 Santiago *EL MERCURIO* in Spanish
22 Feb 93 p C5

[Article by Ivan Martinic]

[Excerpt] Punta Arenas—The Environmental Health Department of the Magellan Health Service has released the contamination levels by red tide detected in bivalve shellfish in the Magellan Strait, which are reaching a concentration of toxin of up to 7,000 micrograms. The maximum permitted for human consumption is 80 micrograms.

It has been reported that almost two years after the emergence of this phenomenon in southern waters, there are no signs of a decrease, which last week prompted the absolute prohibition of taking bivalve shellfish from throughout the Magellan Strait waters.

A strong recession is consequently affecting the regional fishing industry, harming especially fishermen and divers. Due to the special characteristics of the phenomenon, it is rather impossible to predict its future behavior.

Tests conducted on shellfish extracted from different areas in the Magellan Strait show that the most compromised areas are located south of Punta Arenas, the sector of La Discordia, Puerto del Hambre, and in Porvenir, in the island of Tierra del Fuego. [passage omitted]

No fatalities have been recorded for 10 months and illnesses have decreased considerably, but their effects on the regional economy are devastating.

South Pacific Ministers Sign Marine Life Agreements

PY1803234193 Santiago *LA TERCERA DE LA HORA* in Spanish 6 Mar 93 p 18

[Article by Patricia Escalona]

[Text] Yesterday evening Foreign Minister Enrique Silva Cimma underlined the importance of the agreements signed with his Peruvian, Ecuadorian, and Colombian counterparts within the Southern Pacific Standing Committee (CPPS) [Comision Permanente del Pacifico Sur] to preserve marine flora and fauna and ecosystems. Silva Cimma stated that the foregoing agreements "promote Chile's interests in the Pacific Ocean."

Silva Cimma returned home from Lima yesterday at 2115 local time aboard a FACH [Chilean Air Force] plane. He had travelled to Lima to attend the fourth meeting of CPPS foreign ministers, which had not been convened for four years at the ministerial level.

Upon being asked what prompted him to attend the meeting now, Silva Cimma said the CPPS "is a very important

forum for furthering Chile's maritime interests" and the agreements signed are "most satisfactory."

According to Silva Cimma, there was broad consensus among the four foreign ministers on the need to conserve marine species.

The document signed by Colombian Foreign Minister Nohemi Sanin, Peruvian Foreign Minister Oscar de la Puente, Ecuadorian Foreign Minister Diego Paredes, and Silva Cimma points out that "the committee cannot turn a blind eye to unrestricted deep-sea fishing by foreign fleets." To that effect, it was established that preventive measures must be taken in order to protect species threatened with extinction.

The foreign ministers reiterated their commitment to protect the marine environment from hazardous substances. Regarding this issue, let us point out that the CPPS has been a useful forum for Chile for lodging complaints about nuclear testing conducted by France in the Moruroa atoll.

The Lima meeting had no sooner ended than Silva Cimma returned to Santiago to rest during the weekend before travelling to Montevideo, Uruguay, on 8 March to attend a Rio Group meeting.

ECUADOR

South Pacific Commission Creates Special Galapagos Islands Zone

PA0903163993 Quito *Voz de los Andes* in Spanish
1200 GMT 9 Mar 93

[Text] Foreign Minister Diego Paredes reported the fourth meeting of Foreign Ministers of the South Pacific Permanent Commission decided to create a special zone around the Galapagos Islands to protect the ecological conditions in the area.

Paredes added the foreign ministers are interested in strengthening the existing mechanisms to protect whales in the Southeast Pacific and establishing zones for the preservation of the species.

In addition, the foreign ministers signed a declaration in which they stressed the need to regulate maritime transportation of radioactive, dangerous, or toxic substances through the South Pacific coastal region.

Paredes said the fourth meeting of the South Pacific Permanent Commission in Lima ratified the right of countries bordering the South Pacific to protect the species inhabiting their respective coasts.

MEXICO

Laguna Verde Nuclear Plant Safety Flaws Cited

93WN02874 Mexico City *PROCESO* in Spanish
No 847, 25 Jan 93 pp 27, 29

[Article by Guillermo Zamora]

[Text] Laguna Verde, Veracruz—The Laguna Verde (LV) nuclear power plant has become altogether unsafe, "and a

serious nuclear accident with incalculable consequences is very likely. It could happen this very year unless the existing irregularities are corrected," documents and testimony from LV engineers and technicians indicate.

A disaster almost happened on 18 September 1992 after LV suffered a total loss of external electric power during the refueling maintenance periods. "There was no reason why this incident, which lasted three hours, should have happened, but if it had occurred with the plant in operation, all of the safety systems would have been disabled, and an accident would have been very likely. Fortunately, the plant was down."

According to this testimony, the main condenser is also badly corroded, and the NSW [Nuclear Service Water] system, which cools all the equipment and is supposed to hold up for 40 years, has worn out in just three; the warehouses for medium- and low-intensity radioactive materials, which were supposed to last five years, are full."

Moreover, millions of liters of radioactive water have been discharged into the Gulf of Mexico, and the atmosphere has been contaminated within an 80-kilometer radius, which includes towns like the port of Veracruz and Jalapa.

This reporter has consulted the following documents:

Notifications of Reportable Sources (NER's), which describe the incidents that endanger operations; the evaluations of these documents by the CNSNS [National Safety and Safeguards Commission]; the Safety Deterioration Indicator; documents analyzing the causes of the emergency shutdowns that have occurred; the Report on Plant Personnel Dose Control; the Annual Report on the Radiological Monitoring of the plant; and the orders for corrective maintenance on leaks and condenser corrosion.

According to information furnished to this reporter, the major maintenance and the refueling for Cycle III (the third year of operations) were completed at LV on 30 September. "And just three days after the startup began, on 3 October, there was an emergency shutdown because of a massive intrusion of seawater due to the severe corrosion of the main condenser. During the shutdown the condition of the condenser was assessed, and repairs were done on the piping; more than 90 percent were found to have significant corrosion. Nonetheless, orders were given to begin operations again, but owing to the presence of high concentrations of copper, LV operated for 20 days on reduced power, under 40 percent."

Later, on 27 November, it had another emergency shutdown, owing to breakdowns in the flow control of the valves on the recirculation pump.

Since 1 October "the CNSNS has permitted departures from the technical operating specifications, which represent the framework for plant safety and standards. As a result of all this, there was another emergency shutdown on 17 December, with a warning of higher radioactivity in the

processing fluid. This pointed up the lack of appropriate monitoring, as a result of which it took longer to switch off the safety system. Simply put, this means that Unit One at LV (the plans are to start up Unit Two late this year) is operating under poor safety conditions. As for risk, it means that emissions of radioactive gases are increasing in an area 80 km around LV. These gases are: iodine 131, krypton 85, xenon 138, and cesium 137, all extremely carcinogenic."

Owing to the high concentration of copper and impurities (chlorides) at LV, readings of radioactivity in the "processing water" are up 90 percent, and just 10 percent is being recycled; it should be the other way around. "This boosts the concentration of strontium 90, cobalt 60, cobalt 58, iodine 131, and cesium 137 in fish and shellfish in the Gulf of Mexico. In other words, the food chains in these waters are being contaminated with radioactivity from LV."

"When seawater entered, impurities increased and became activated, and thus the concentration of radioactive materials in the processing fluid rose. The plant was shut down. When it was, all of the processing water had to be replaced. They stored this water in the tanks, thus filling them with liquid radioactive waste. Since the tanks were full and had to be made available to start the plant up again, they dumped the water into the sea. Up to 120,000 gallons were dumped into the sea in just one such incident."

During the first 90 days of the Third Cycle, LV has already had three emergency shutdowns and 12 forced shutdowns due to the high concentration of copper.

Two other serious irregularities have been found at LV. "The Nuclear Service Water that cools all of the equipment inside the plant will have to be replaced during the next refueling. The Ebasco Service Corporation, which designed LV, guaranteed the system for 40 years, but it has lasted just three. Pumps and piping that are not the proper size are going to have to be replaced."

The storage area for radioactive waste, which was designed to last five years, was filled in just three, and now "they do not know what to do."

Furthermore, three years into operations at LV the infrastructure needed for the so-called Emergency External Radiological Plan (PER) does not exist; the medical centers for evacuees are not operating, having neither water nor capsules for radiation victims. The city of Veracruz has no laboratory for monitoring water or food during normal LV operations or in the event of an accident. The Health Secretariat is supposed to have such a laboratory up and running, but one does not exist.

This reporter visited the Health Secretariat's Regional Hospital. He was told that the laboratory would be installed in the future. No one knows why the laboratory does not exist since in 1989 the Health Secretariat handed over, for that purpose, 2.5 billion old pesos to Dr. Cristina Nava, the secretariat's director of occupational and environmental health.

REGIONAL AFFAIRS

Arab League Accuses Israel, Turkey of Creating Water Crisis

NC1303130293 Cairo *AL-AHRAM AL-MASA'I* in Arabic
10 Mar 93 p 2

[Report by Ashraf al-'Ashri]

[Excerpts] The Arab League has accused Israel, Turkey, and foreign parties of fomenting a struggle for water in the Arab world by pressuring Ethiopia and creating a real water crisis for the Arabs, thus threatening the security of Sudan, Syria, Jordan, and Iraq.

In a memorandum on water distributed among the Arab states, the Arab League denounced a number of Western countries for backing Israel's schemes to impose water-sharing agreements on the Arab states. Israel planned to do this by linking Israel's withdrawal from the occupied territories to a response from the Arabs to its designs on the water. The memorandum, prepared by a special committee set up by the League's Ministerial Council in September 1991, sums up a number of papers submitted by member states. It calls for drafting an ambitious Arab plan at the national and pan-Arab levels to be implemented at stages. The plan would define the level of self-sufficiency and search for new water resources so a comprehensive map of water reserves in the Arab homeland could be drawn up. [passage omitted]

The memorandum explicitly accused Israel and Turkey of creating a water crisis in the region, noting that none of the Arab states had any problem before Israel was established. In the meantime, Turkey is exerting great pressure on Syria and Iraq to exhaust their shares in the Tigris and Euphrates Rivers. The memorandum referred in this regard to the Southeast Anatolia Projects and Israel's plunder of Arab waters by providing Turkey with the necessary funds to carry out the projects so that Israel can obtain a fixed share that could meet its needs and store the surplus by setting up subsidiary dams in conjunction with the Turkish Government.

The League described Turkey and Israel's schemes as a grave plot against pan-Arab security. The memorandum shed light on other attempts made by Israel in cooperation with some European quarters to influence and persuade Ethiopia to set up a number of dams on the Blue Nile, thus causing a drop in the Nile water level for both Egypt and Sudan. The memorandum notes that approximately 67 percent of Israel's water consumption is obtained illegitimately, by stealing water-rich resources in Arab territories occupied after the 1967 war, including 35 percent from West Bank waters, 22 percent from the Golan, and 10 percent from southern Lebanon. Israel's emphasis on the Golan and south Lebanon ultimately seeks to serve a strategic goal; namely, to share water with the Syrians and the Lebanese under official agreements should it succeed in its negotiations with the Arab countries. Thus, Israel diligently seeks to link security and water arrangements.

EGYPT

Funds Provided for Red Sea Port, Other Water Projects

NC1603130193 Cairo *MENA* in Arabic
1145 GMT 16 Mar 93

[Text] Cairo, 16 Mar (MENA)—Engineer Fathi al-Mursi, president of the al-Nasr Phosphate Company, has announced that 28 million Egyptian pounds have been earmarked for developing and modernizing the Abu Ramad port on the Red Sea to receive ships with a capacity of up to 2,000 tons. Such ships transport mineral raw materials to factories, particularly to the area of Abu Zanimah in Sinai which houses the ferromanganese alloys factory that started production a few days ago using manganese recently mined in Hala'ib.

He said that a study has been launched to explore the possibility of cultivating the 10 valleys between Shalatayn and Parallel 22 by building several dams and reservoirs to store rain water and irrigate crops and vegetables for the region's inhabitants. He also said two desalination plants will be built on the Red Sea, each with a production capacity of 50 tons potable water per day, to avoid having to bring water by ship from Suez.

He noted that the water the two stations will produce, in addition to newly discovered underground water, will more than cover the needs of the inhabitants and workers.

Al-Mursi added that there are projects to study ways to exploit the fish resources of the areas around Hala'ib and to employ windmills to generate the electricity needed for an ice factory and for other mining projects and utilities.

ISRAEL

Arab Paper Alleges Burial of Nuclear Waste

93P40074A Amman *AL-DUSTUR* in Arabic
23 Nov 92 p 19

[Text] Jerusalem (QUDS PRESS)—An Arab newspaper published in the territories occupied in 1948 [Israel] said that Israel has buried large amounts of nuclear waste in areas near the occupied territories, which could lead to disaster.

In its issue published last Friday [20 November], the weekly newspaper *AL-BAYARIQ* quoted a security report which said that secret units from the Israeli Defense Ministry, the Mosad and a body belonging to the Dimona reactor had buried this waste.

The report, which U.S. Secretary of Defense Richard Cheney received at the time, indicated that nuclear scientists from Israel and one of the CIS countries warned Yitzhaq Rabin, who was then defense minister, about the way in which this waste was buried. These scientists pointed to the possibility of nuclear radiation leakage within five years threatening some towns with a large Jewish presence, as well as camps in the Negev desert containing foreign military and experts.

SYRIA

Escalating Tigris, Euphrates Water Dispute With Turkey

PM2912144392 London *AL-HAYAH* in Arabic
24 Dec 92 pp 1, 4

[Muhammad 'Allam report: "Vehemently Criticizing Ankara, Damascus States: It Has No Desire To Improve Relations"]

[Text] Cairo—In a sudden Syrian escalation of invective against Turkey, Damascus has leveled six strongly worded accusations at Ankara: intransigence, violation of international law, usurpation of rights, misuse of right, lack of desire to improve the atmosphere of relations, and imposing conditions and resorting to procrastination to delay final agreement on the sharing of the Tigris and Euphrates waters.

Syria warned of the danger of any Arab state's financing a project which Turkey is preparing for the Tigris and Euphrates basin, because that would put suffocating pressure on it. It drew the Arab League's and member states' attention to the danger of supporting the Turkish "peace pipeline" project designed to supply Israel with water.

In an urgent official memorandum which the League received a few days ago and whose text *AL-HAYAH* has read, Damascus stressed the need to link relations between any Arab state and Turkey with Ankara's stands on the Tigris and Euphrates waters. And it urged that Arab pressure on Ankara be stepped up in a "committed and constructive" way to secure—as soon as possible—a clear agreement on the sharing of the two rivers' waters with Syria and Iraq. This is because Turkey "is harming Arab interests associated with a vital element—water."

The Syrian memorandum urged the League to issue two resolutions (Damascus proposed the draft resolutions) on water resources and food security. The first urges the Arab states to "hasten to submit memorandums on their water problems with non-Arab states." The second calls for "a unified Arab position toward these non-Arab states, especially as food security is linked to water."

In its memorandum Syria expressed utmost astonishment, because "it is unreasonable for Turkey to conclude with its (formerly) Soviet, Bulgarian, and Greek neighbors agreements on its common international waters and yet

procrastinate for decades to avoid reaching a just and reasonable agreement on common international waters with its Arab neighbors."

Syria attributed its escalation against Turkey to the following reasons:

First, although the talks among Syria, Iraq, and Turkey began in 1962, they have produced no positive results with regard to sharing the two rivers' waters in a fair and acceptable way. The reason for this is the Turkish side's position, which is becoming more and more intransigent.

Second, Turkey's violation of international rules and conventions and its claim to rights that do not belong to it by its insistence on considering the Tigris and Euphrates two rivers crossing the borders rather than two common international rivers among the three states. This is in addition to its attempt to impose—on the basis of its belief in this connection—the idea that it has rights which give it, so it claims, the absolute freedom to dispose of the two rivers' waters within its political boundaries on the pretext that they originate from Turkish territory.

Third, Turkey's claim that the waters passing across the Syrian-Turkish border to both Syria and Iraq are a big sacrifice on the Turkish side toward its neighbors.

Fourth, imposing conditions on the pretext of the claimed need to use technology in the irrigation projects in the two rivers' basins in the three countries, and linking the rationing of the use of water, ignoring the existing political boundaries among the three states.

Fifth, considering the Tigris and Euphrates basins one basin and the possibility of transferring the water from the Tigris and Euphrates via the al-Tharthar project in Iraq.

The Syrian memorandum urged the League and member states to do the following:

First, not to finance any Turkish project in the Tigris and Euphrates basin, on the grounds that any financing of any project would constitute a means of exerting suffocating pressure on two Arab states—Syria and Iraq.

Second, the need to reactivate technical and legal coordination so as to bring views closer and confront the stealing of water in southern Lebanon, the West Bank, and the Gaza Strip.

Third, to urge Turkey to respect international law and take account of common interests. And also to examine the political background to the proposed regional projects like the "peace pipeline" project and its impact on the Arab east, especially as it is designed to supply the Zionist entity in Palestine with huge quantities of water.

REGIONAL AFFAIRS

CIS Commission Urges Priority On Environment Issues

LD1503234793 Moscow ITAR-TASS World Service
in Russian 1205 GMT 15 Mar 93

[By ITAR-TASS correspondent Gennadiy Kulagin]

[Text] Alma-Ata, 15 Mar—The second session of the standing commission on environmental problems of the CIS Interparliamentary Assembly ended with the adoption of its first legislative act that contains recommendations on compensation for ecological damage. The document is based on a draft proposed by the Kazakhstan delegation.

The commission has discussed ecological norms and standards in the area of the use of natural resources and the protection of the environment, measures to monitor the condition and changes in the environment and its resources, and the mechanism of settling disputes that may arise during the implementation of ratified legal acts of the CIS on questions of eliminating consequences of the ecological damage in the regions of Semipalatinsk, Chernobyl, the Aral Sea, and other regions.

The commission's message addressed to the CIS Interparliamentary Assembly states that questions of protection of the environment must be given priority and that it is necessary to increase resources allocated for this purpose.

RUSSIA

Military Said To Ignore Dangers in CW Research, Destruction

93WC00304 Moscow MEGAPOLIS-EXPRESS in Russian
No 5, 3 Feb 93 p 13

[Article by Lidiya Malash: "A Less Than Wholehearted Disarmament"]

[Text] At the parliament hearings in the White House, the Comprehensive Program of Phased Destruction of Chemical Weapons in Russia, developed by the Committee for Chemical and Biological Weapons Convention Problems under the president of the Russian Federation together with the Ministry of Defense, was judged negatively by experts and representatives from the regions. This does not mean at all, however, that the decision on the issue is final. There is a real danger that during the process of discussion and approval of the program by the Supreme Soviet, we will see increased activities on the part of the deputy lobby representing the military-industrial complex, who want to destroy a certain part of chemical weapons without destroying the idea of producing toxic substances.

Moscow, Kineshma, and From There On, Everywhere....

The Bolshevik Government developed an interest in chemical weapons [CW] as early as in the beginning of 1920's. Having signed an agreement with Germany on assistance in organizing its production and sharing experience in practical applications, the Soviets opened the first enterprise for

production of iprit in the city of Trotsk (currently Chapayevsk, Samara Oblast). Over the years of Soviet power, the largest chemical weapons production plants were built mostly in the Volga region: Kineshma, Dzerzhinsk, Cheboksary, Saratov, Volgograd. Moscow is another major military-chemical center (five so-called plants plus a testing site). Chemical weapons storage facilities are located in Penza, Udmurtia, and in Bryansk and Kurgan Oblasts. This, of course, is not all.

The main military-chemical testing site had its beginnings not far from the borough of Podosinki in Saratov Oblast, which eventually grew into today's Shikhany (Volsk-18). This is the site of the Central Scientific-Research and Testing Institute of the Ministry of Defense's Chemical Troops (TsNIIKhV MO). Attached to it is a testing site occupying more than 400 square kilometers. The institute conducts testing of all prototypes of chemical weapons. Specialists believe that this is where the prototype of the binary chemical bomb was tested. Also in Shikhany is the Volsk branch of the Central Scientific-Research Institute for Organic Chemistry and Technology, not too long ago renamed the State Institute for Organic Synthesis Technologies (GITOS), where the technology for destruction of chemical weapons is being developed. It has its own experimental plant and its own chemical and technical storage facilities.

Shikhany and Novocherboksarsk are slated to become the two primary sites for the destruction of chemical weapons. It has been decided to transfer here from military bases (in particular, from Kambarka and Kizner in the Udmurt Republic and Shchuchye, Kurgan Oblast) several tonnes of Lewisite in storage containers, as well as most toxic phosphororganic toxic substances. The technology for destroying them involved utilization and burning of waste. Shikhany is to become a huge dump for hazardous substances. For this purpose, a dump where they will be buried is being built. All of this is part of the Comprehensive Program, whose author is military Academician Anatoliy Kuntsevich.

Man Is a Cheap Raw Material

One can hardly speak of morality in military matters. Especially when dealing with "secret" matters. Hidden under the shroud of military and state secrets, however, often are crimes against man and humanity. Biological experiments on mice and rats are commonplace. Alas, they cannot present a complete picture of toxic substances' effect on the organism. The animals that are considered closest to humans by their physiological reactions are pigs and monkeys. Experimenting on them is considered costly and troublesome, however. The conclusion: The cheapest raw material for experiments is man. Such experiments were conducted in Shikhany in the summer of 1982. One of the participants in these tests was Vladimir Petrenko. He was one of the test subjects.

"I was summoned by department chief Colonel Suchkov," Petrenko tells his story. "He said that it was necessary to conduct a series of tests—to find out how the protective measures affect humans. He suggested that I volunteer, since I was a young Communist. I agreed—I was promised

complete safety, after all. In this way 30-40 people were selected, in groups of two. This was at Kuntsevich's order; Colonel Smirnov was the person immediately in charge of testing. The experiments lasted a week. After that I felt terrible and realized that I had been affected by toxic substances. I ended up in Burdenko Hospital, but for quite a while I could not get out of my father-commanders which substances exactly I had been subjected to. It turned out that it was VX—a gas....

Military Academician Kuntsevich reported "upstairs" that the testing of toxic substances had been successful, and continued his scientific work. Major Petrenko, despite medical contraindications, was sent from 29 May until 16 July 1986 as a "liquidator" to Chernobyl. Others on whom toxic substances had been tested in the past also were sent to the zone. The officers carried out this order, too. Over the first post-Chernobyl year, however, several people from among the Shikhany "liquidators" died, and two committed suicide. Vladimir Petrenko has been medically diagnosed with 10 chronic illnesses acquired as a result of exemplary service in the Chemical Troops. He was not permitted to serve until full pension, though. He was transferred to the reserves as a part of personnel reductions.

Some military specialists maintain that such experiments on people are unavoidable, as is the destruction of nature in the area where modern weapons are tested. They say that both Americans and the French have conducted similar experiments. Perhaps this is so. Still, when a person gives to the military machine his health, and sometimes his life, this must be somehow compensated for. The Soviet version of "compensation" is to finish the person off with an even greater "testing" dosage—after all, he has nothing to lose. In essence, this is a typical trick of the criminal world—remove a witness because he knows too much.

"A Military Man Through And Through." This Says It All

The world wants to walk away from war. The military are forced to submit to this will, but still try to outwit each other in every possible way by "stripping" their opponents while keeping a "strategic stash" themselves. When the UN General Assembly adopted the draft of the Chemical and Biological Weapons Elimination Convention, the Committee on Convention Problems, headed by Kuntsevich, together with the Ministry of Defense and other agencies, quickly developed the Comprehensive Program. It deals, however, not with the principle of protecting the environment and the individual, but only with the technology for the destruction of 40,000 tonnes of toxic substances stored in seven specialized arsenals of the Russian Ministry of Defense. (According to the former director of the Cheboksary branch of the GS NIIOKhT, Vladimir Shcherbak, the total volume of toxic substances produced is nine times greater). This is actually the point of the ploy on the part of the military: Since the accumulation of chemical weapons has been excessive and it is not safe to store it, we need to get rid as quickly as possible of the old ones and develop new, more powerful types. For instance, the already-mentioned VX toxin, which is 45,000 times more toxic than phosgene.

Knowing fully well where "weakness" of the document lies, Kuntsevich has bypassed the Ministry of Ecology and the Ministry of Health. He even ignored the "special opinion" of the Russian Ministry of Security that "a decision on where to build and operate the facilities for the destruction of chemical weapons and on their transportation must be made only upon concurrence of local organs of power and the public." The head of the Saratov Oblast administration, Yury Belykh (whom Kuntsevich carelessly called Sedykh), was simply informed by an official letter from the latter that Shikhany was to be the site for the construction of facilities for processing and utilizing toxic substances.

Kuntsevich was 100 percent certain that he would succeed in his undertaking. After all, ignoring the fact that the document did not have attached to it a positive assessment by the state ecological expert commission, Ruslan Khasbulatov on 26 October 1992 passed the Supreme Soviet Presidium's decision on the Comprehensive Program, thereby de facto approving it. Two days earlier, the academician wrote a letter to the president: "Esteemed Boris Nikolayevich! The work on the draft Convention on Banning Chemical Weapons has been completed. The draft has been submitted to the UN General Assembly for consideration. The Ministry of Foreign Affairs of Russia reports that 138 states have declared their willingness to join the draft resolution as co-authors. So far Russia has not issued such a statement, which puts it in isolation and causes it to lose political points. Said delay is the result of the absence of the approval of the program of phased elimination of chemical weapons in Russia and its targeted financing.... A draft of this program has been developed...." And further on: "In the current situation it appears expedient to announce your approval in principle of this program...." On 10 November Yeltsin sends an official letter to Academician Kuntsevich and Minister of Foreign Affairs Kozyrev with a single word: "Agreed."

The "riot" was started by the regions. The Supreme Soviet of Chuvashia passed a decision to ban destruction of chemical weapons and placement of the corresponding facilities on its territory. In Udmurtia, residents of the city of Kambarka, where a supply of lewisite is stored, held protest rallies. The parliament of Tatarstan intends to ban transportation of chemical weapons through the territory of the republic. Deputies of the Volsk City Soviet object to turning Shikhany, Volsk, Rybnny, and Balakovo into an immense testing site. This was the formal pretext for holding the hearings in the Russian parliament.

According to the conclusion of experts, Kuntsevich's program does not envisage the 15-kilometer sanitary-protection zones. It does not go into the issues of solid waste disposal. There is no risk assessment with respect to transportation of toxic substances by our already accident-prone railroads. It would also make sense to listen to the opinion of Stanislav Petrov, Russia's Chemical Troops chief, who believes that at this point we do not possess the technology for the safe destruction of chemical weapons. Finally, the program financing contains a rather strange ratio: The elimination of chemical weapons on the territory of Russia by itself is estimated to cost 340 billion rubles (in 1991 prices), while

\$543 million is allocated for "inspection activities." At the same time, \$10 million could not be found to purchase imported devices to monitor the state of the environment. (For comparison: Americans estimate the cost of their program of destruction of chemical weapons at \$10 billion. Their inspection activities "cost" \$2 billion.)

Very soon, at the instigation of the military industry and with the blessing of the authorities, we could have our own chemical Chernobyl. And it is unlikely that Academician Kuntsevich would be held responsible. After all, at first glance his mission has such a peaceloving, almost Sakharov-like appearance, with the idea of saving humanity from self-destruction. The only difference is in the extent of the morality possessed by the persons in question, the sincerity of their motives. In his interview to ROSSIYSKAYA GAZETA on 11 November of last year, Kuntsevich explains that despite the ban on chemical weapons, scientific research and testing in this field is permitted. Russia, he says, did not assume unilateral obligations in this respect and is clean in the eyes of the world community. For all practical purposes, the academician thereby admits that he has been and remains a military man, whose thinking remains strictly within departmental boundaries. Two months later in Paris, however, the signing of an international convention banning the development of chemical weapons has begun. What will the general say now?

In the words of Doctor of Chemical Sciences Lev Fedorov, "We answer for our deeds not to the Americans but to our own future generations." [begin box]

MEGAPOLIS-EXPRESS DOSSIER

Anatoliy Kuntsevich, a lieutenant general, academician. Shikhan is where he started. For 10 years, he headed the TsNIIKKhV MO. His name is included in the Chemists Reference Book, which contains information on the leading world scientists. In 1987 he officially declared that production of chemical weapons in the USSR had been suspended. In 1991, Mikhail Gorbachev awarded him the Lenin Prize for the creation of binary chemical weapons—the most powerful in the world. Kuntsevich currently heads the Committee for Chemical and Biological Weapons Convention Problems under the president. [end box] [begin box]

MEGAPOLIS-EXPRESS DOSSIER

Vladimir Petrenko, major (reserves). Having graduated in 1981 from the Saratov Chemical Protection Military School, he came to work for the TsNIIKKhV MO. In the course of his service in the institute, was executive in charge and had conducted four state tests of experimental prototypes of means of decontamination and deactivation. For eight years worked in especially hazardous conditions. Currently a deputy of the Volsk city soviet, chairman of the subcommission on ecology. [end box]

Radioactive Waste in Barents Sea Labeled 'Ecological Time Bomb'

934A0534A Moscow IZVESTIYA in Russian 22 Dec 92
Morning edition p 7

[Article by Marat Zubko: "Ecological Bomb on the Bottom of the Northern Seas"]

[Text] The Finnish press called the map of the radioactive contamination of the Barents and Kara seas as well as northern Russia, which was prepared by the Center for Arctic Investigations located in the polar town of Rovaniemi and by "Greenpeace," an international organization for the preservation of the environment, an "ecological time bomb."

The authors of this map tried to summarize all of the more or less known kinds and sites of buried radioactive wastes that for years "settled" in these regions as a result of the activity of military and civilian branches of the former USSR and later, possibly, of Russia.

So here is how three basic sources of contamination look, according to information of our neighbors.

The first is tests of nuclear weapons. Until 1965, atmospheric explosions were carried out in the region of the islands of Novaya Zemlya and later underground explosions were performed. Their influence on the natural environment of the north still has to be assessed precisely. As you know, recently the authorities of Russia decided to extend the moratorium on tests at the Novaya Zemlya Test Range, which met with a generally positive response abroad.

But it should not be forgotten that peaceful nuclear explosions were also carried out in the North. This took place on Kola Peninsula, where scientists and specialists examined the possibility of crushing apatite ore with their help. According to the information of the Finns, there were two or three such tests.

The second source is radioactive wastes. "Greenpeace" asserts that tens of thousands (!) of barrels with radioactive substances rest on the bottom of the seas in the region of Novaya Zemlya. This organization calculated that the Russian Northern Fleet annually dumped into the water 10,000 cubic meters of liquid and 2,000 cubic meters of solid wastes of differing degrees of radiation.

There are also burials on dry land—on Kola peninsula, where a nuclear power station is in operation, and on the shores of the White Sea, where nuclear submarines are based, according to "Greenpeace."

The third source is nuclear reactors that have gone down or been sunk. They are primarily reactors that served their allotted time on submarines or nuclear icebreakers. They were mostly sunk in the Kara Sea along the eastern shores of Novaya Zemlya. Western experts think that from 13 to 20 reactors lie there, whereby nuclear fuel is still found in some of them. Two reactors are on board the Soviet submarine "Komsomolets," which suffered a disaster not far from the Norwegian island of Medvezhii.

Altogether, according to the "Greenpeace" specialists, the contamination of the northern seas by the Soviet Union is expressed by the figures of 2.2-3.2 million curies, which is two to four times greater than the harm done to the Atlantic by Western countries.

Hearings dedicated to the problems of radioactive wastes were recently held in the Finnish Parliament. Also participating in the meetings were representatives of Russia, who stated that the country is preparing a national map of



Key:

1. Tests of nuclear weapons
2. Radioactive wastes
3. Sunken or buried reactors
4. Franz Josef Land
5. Novaya Zemlya

6. Kara Sea
7. Spitzbergen
8. Barents Sea
9. Regions of sunken reactors
10. Finland
11. Russia

regions affected by radiation, that they are taking stock of all enterprises using radioactive substances, and that an All-Russian safety system is being established.

Your correspondent asked the chairman of the hearings, Deputy to the Finnish Parliament P. Paasko, how he assessed the results of the discussions and the degree of openness of the Russians.

"I am very satisfied with the hearings, especially with the atmosphere of trust that prevailed in the hall," he answered. "There is still an enormous number of problems in the area of the radioactive wastes and I hope that such discussions will help to resolve them."

Still, one should not overestimate this optimism. There are also other statements being made in Finland and other states of northern Europe. They are saying, for example, that the Russian side, possibly at the level of individual departments or enterprises, is continuing the practice of burying radioactive wastes in the Barents Sea.

The Norwegian Minister of Defense Yu. Holst, for example, asserts that the Norwegian authorities "maintain strong suspicions that wastes are being sunk to this day." These suspicions also fall on Russian military people who, in the words of Gunnar Skaug, chairman of the Norwegian parliamentary committee on foreign policy, "are waging warfare against the environment."

Reports to the effect that Norwegian reconnaissance aircraft had located a discharge of radioactive water into the Barents Sea by our tanker "Serebryanka" made a great impression on the Norwegians and other northerners. The pilots photographed the ship as it went to sea and the photographs showed that the tanker "sat" in the water down to the water line itself, that is, it was heavily loaded. But after a time it returned significantly lighter.

It appears that all of these and similar suspicions will be removed only when Russia publishes its own map of regions contaminated by radiation and the operations in the burying of wastes are put under strict control.

Severodvinsk Nuclear Shipbuilding Center Set Up

*MK2612114292 Moscow MOSKOVSKAYA PRAVDA
in Russian 25 Dec 92 p 1*

[Unattributed report under "Atomic Thrust" rubric]

[Text] It has been decided to set up a Russian state atomic shipbuilding center based on enterprises in the city of Severodvinsk, Arkhangelsk Oblast. Its task is to implement a unified technological policy in the construction of under-water and surface ships carrying nuclear devices.

Yeltsin Receives Report on Undersea Nuclear Waste Sites

*OW1603175593 Moscow INTERFAX in English
1710 GMT 16 Mar 93*

[Following item transmitted via KYODO]

[Text] A special governmental commission has completed a survey of the dumping of radioactive waste in Russia's territorial waters and presented a report to Russian President Boris Yeltsin.

The Arkhangelsk newspaper VOLNA was informed by Aleksandr Yemelyanenkov, one of the commission's members, that the report contained information about the dumping of 16 nuclear submarine reactors in Russia's northern sea waters. Nuclear fuel remained in six of these.

The commission's representative said that a total of 4,900 containers of solid radioactive waste with low and medium levels of activity had been submerged in the Kara and White Seas between 1964 and 1991.

Two reactors from the Pacific Fleet's nuclear submarines lie at a depth of 3,000 meters in the Sea of Japan. A disposable radiation shield from a nuclear submarine was flung into the sea off the eastern shore of the Kamchatka in 1989.

Yemelyanenkov said that if international standards concerning the burial of nuclear waste were to be applied, only 1 of Russia's 23 sea-dumping grounds could be used.

"This excludes the dumping of nuclear waste in both the Kara and the White Seas as these lie outside the latitudes (50 degrees south and 60 degrees north) within which waste may be dumped," Yemelyanenkov said.

Documents Detail Radiation Anomaly at Belyarsk AES

*PM3012111592 Moscow ROSSIYSKAYA GAZETA
in Russian 29 Dec 92 First Edition p 4*

[Unattributed feature under general heading: "Accident at Belyarsk Nuclear Electric Power Station?"]

[Text] On 24 December a session of the Russian Federation government examined the question of the construction of nuclear electric power stations in Russia in 1992-1995. During the discussion Aleksey Yablokov, the Russian Federation president's adviser for questions of ecology and health protection, submitted the following documents for appraisal by those assembled.

Document No. 1: Aerial Spectrometric Study of the Belyarsk Nuclear Electric Power Station Region (footnote), (published in abridged form)

In October 1991 while conducting an aerial spectrometric survey on a scale of 1:200 000 on the territory of Yekaterinburg and Chelyabinsk oblasts a local cobalt and cesium gamma radiation anomaly with a maximum intensiveness of about one microroentgen an hour was discovered in the region of the Belyarsk AES [nuclear electric power station].

The territorial hydrometeorological services and representatives of the oblast administration were informed of the discovery.

In August 1992 while conducting detailed aerial spectrometric work along the river Techa valley and the cities of Kasli and Kyshtym we carried out a repeat and more detailed investigation of the Belyarsk AES.

Four routes 10-12km long were taken above the station's territory, with a distance of 500 meters between each route. The maximum gamma radiation anomaly was 100-300 meters north of the station's main building and is 1,200 microroentgen an hour. The anomaly was traced over a distance of 1km perpendicular to the direction of the flight.

The nature of the anomaly is complex and involves cobalt-60, cesium-90, and uranium (radium). The anomaly is spread over the area in such a way that the maximum yields of cobalt-60 and cesium-137 do not coincide, that is we may be dealing with several anomalous sectors. It should be noted that the gamma radiation dose is formed mainly by cobalt-60 radiation. The cesium-137 input to the dose is about 15-20 percent. This picture of the gamma radiation field is not typical of a single AES in the region of which we have conducted aerial spectrometric surveys.

Since the cause of the formation of this anomaly remains unclear and it is not ruled out that it has been caused by an accident, work in the region of the Beloyarsk AES should be continued in more detail. (Our boldface—editorial office).

[Signed] A.F. Fedotkin, chief of the "Aerogeofizika" GNPP [expansion unknown] aerogeophysical department, and V.M. Kertsman, chief geophysicist of the department, 23 October 1992.

Document No. 2

In August this year, while carrying out detailed aerial spectrometric operations in the Urals region in accordance with the Russian Federation Government's 6 June 1992 directive NO. 1015-r, a survey was also carried out in the region of the Beloyarsk AES.

As a result of the survey anomalous concentrations of cesium-137, cobalt-60, and uranium (radium) radionuclides were discovered in the region of the AES and the maximum yield of a dose during the survey was recorded at about 1,200 microroentgen an hour and was formed mainly of cobalt-60 radiation.

Since in this case in our opinion we are dealing with local subjects the true levels of pollution and yield of the dose in the immediate vicinity of the sources could be many times greater than the values cited in the enclosed documents. Proceeding from what has been stated, we believe that the radiation situation in the region of the Beloyarsk AES requires a detailed study.

[Signed] Yu.S. Tsaturov, first deputy chairman of the Russian State Committee for the Social Protection of Citizens and Rehabilitation of the Territories that Have Suffered from Chernobyl and other Radiation Accidents, 10 December 1992.

From the editorial office: The actual fact of the accident at the Beloyarsk AES is known and has frequently been mentioned, but somehow indistinctly. The details are still not known. Perhaps the published documents will help shed light on this long-standing story. Well, the list of nuclear accidents backed up by documentary proof will be enlarged. But how many accidents must there be for the people who make very responsible decisions to understand that only

safe nuclear energy is profitable. As has been understood by the Germans, who instantly closed nuclear electric power stations with Soviet reactors in the Eastern lands.

ROSSIYSKAYA GAZETA has already written about the ill-considered nature of Russia's energy policy. It is proposed to make up the shortage of capacities largely by constructing new AES's and expanding existing ones, with reactors of the "Chernobyl" type. This new nuclear energy race could entail a terrible cost for Russia.

'Pure Water-93' Action Begins in St Petersburg

*LD1003112193 Moscow ITAR-TASS in English
1101 GMT 10 Mar 93*

[By ITAR-TASS correspondent Aleksey Zavinovskiy]

[Text] St. Petersburg, March 10 (TASS)—A regular Pure Water-93 action began in St. Petersburg today. It is being held by the Bureau of Ecological Developments, the firms which supply subterranean water to the city and the Mash-ekologiya Scientific and Technological Centre. The action includes a number of measures, aimed at ensuring the supply of ecologically safe water to St. Petersburg.

The action began with an open session of the St. Petersburg Public Committee for Water Supply. The organising of the use of ecologically safe subterranean water for making foodstuffs at food industry enterprises became one of its main tasks. The "home ecology" fair and a conference of the Russian Green movement and the north-western branch of the Green Cross Organisation will also become part of the action.

Thefts of Radioactive Materials in St Petersburg Area

*LD1003175893 Moscow ITAR-TASS in English
1529 GMT 10 Mar 93*

[By ITAR-TASS correspondent Yuriy Khrapunov]

[Text] St. Petersburg, March 10 (TASS)—Fifteen powerful sources of radioactive radiation were stolen from the "Phosphorite" production society in Kingisepp, Leningrad Region. Experts are inclined to regard this as the beginning of "barbarity unprecedented in Russia".

ITAR-TASS was told by officials of the Radioactive Safety Inspection of Enterprises and Organisations, located in the northwestern part of the country. It appears that thefts of radioactive isotopes from enterprises using them are becoming a new threat to human health in St. Petersburg. There are over 3,000 such enterprises in the said area.

Inspectors have established that these thefts are partly due to the incompetence of managers, workers of enterprises, and the thieves themselves. This is borne out by their lack of knowledge about the norms and rules of radioactive safety, biological effects of radiations, methods of using and storing radio isotopes, instruments and equipment.

Sosnovy Bor Nuclear Plant Renovation Underway

*LD1403200693 Moscow ITAR-TASS World Service
in Russian 1158 GMT 14 Mar 93*

[by ITAR-TASS correspondent Nikolay Krupenik]

[Text] Sosnovy Bor (Leningradskaya Oblast), 14 March—The replacement of reactor fuel channels at the second power generating unit at the Leningradskaya nuclear plant, which is undergoing major renovation, was completed today. Valeriy Lebedev, the plant's chief engineer, has told the ITAR-TASS correspondent that, in accordance with the schedule, experts have begun assembling circular pumps. According to Lebedev, the renovated power generating unit will conform to all the standards adopted by the International Atomic Energy Agency. The modernized automatic safety system will play a special role in this respect.

Chemical Pollution Seen as Likely Cause for Unexplained Illnesses

93WN0304A Moscow TRUD in Russian 4 Mar 93 p 2

[Article by Igor Tsarev: "The Cause of Death Has Not Been Determined. This Genie May Turn Out To Be More Terrifying Than the Radioactive One"]

[Text] In recent years, "epidemics" that physicians could not understand have been occurring increasingly often in the territory of Russia. Special commissions use the best specialists in order to figure out the causes affecting people's health and lives. However, in most cases such investigations do not produce any specific results. Why?

Recently, the Guinness Book of Records, published by Progress Publishing House, ended up in my hands. On page 201, I noticed the table "Accidents, Disasters, and Catastrophes in the Russian Empire and the USSR." Among other curious facts it said, in particular:

Date—April-May 1979;

Location—a plant manufacturing chemical weapons, Novosibirsk;

Disaster—chemical poisoning (industrial);

Number of fatalities—300.

There is no argument: This is an "uncommon" record. I immediately got in touch with our staff correspondent in Novosibirsk, Oleg Khrupunov, and asked him to find out the details of this accident. A few days later, he called me, completely out of sorts: "We have conducted a complete investigation here. We have not just inquired with official echelons but have also talked to many employees of the local chemical enterprises. However, nobody had a clue about this accident!..."

A sober-minded man who had never lived in our country would apparently draw just one logical conclusion in this situation—Guinness had made an error! After all, the death of 300 people just could not have gone unnoticed. However, that it is the way it is over there, in their countries.... As far as we are concerned, we know how capable our military departments are of keeping their secrets. Now that the doors to the archives, with a lot of effort, have opened a crack, it

has become sufficiently clear that individuals in power have at times concealed far greater casualties from the public.... As for the reluctance of some employees of the chemical industry in Novosibirsk to discuss the unusual "record," we can understand them. An investigation is still under way in the well-known case of "divulging state secrets" associated with binary weapons. Why would anyone be eager to end up in the shoes of Doctor of Chemical Sciences Vil Mirzayanov, who said in a newspaper that binary weapons, which have been denounced by the entire world, were being developed and tested in our country quite recently?...

"Secrecy" and the abundance of classified chemical production facilities in Russia are the topics upon which I would like to dwell in the present article.

....Ecology was the first "off-limits area" into which the army of journalists broke through after "freedom of speech" began to emerge in our country. I remember how astounded we were: "Atmospheric pollution exceeds the permissible level by a factor of 10 in 84 Russian cities, with a total population of 50 million people. How terrible! The percentage of healthy children by the end of instruction in school does not exceed 20 to 25 percent. A nightmare!..." It appeared that after a flood of denunciatory articles the situation would certainly improve: The air would become cleaner, and the water would become clearer. However, nothing of the kind has happened. The public has gradually lost interest in reports of this nature. One cannot help but recall a joke about a man who, having fallen off a skyscraper, has lived through the initial shock, and is thinking as he falls: "Everything has turned out to not be that frightening...." Meanwhile, the situation in our country is becoming aggravated. The proliferating instances of mysterious poisonings and the complete helplessness of specialists who are trying to determine the causes for injury to people are irrefutable testimony to this effect. Here are just a few examples.

....February 1990. Employees of the Prodkombinat station in Kemerovo suddenly developed strong headaches, shortness of breath, and irritation of the mucous membranes. Seven people were hospitalized with the diagnosis "poisoned by an irritant gas." Physicians were unable to determine specifically with what the people were poisoned. It is assumed to have been a discharge from one of the enterprises—Azot, Khimprom, or Progress—which are located in the vicinity of the station. However, nobody wanted to take the blame...

....March 1990. A report came from Canada, where specimens of the hair and nails of children from Chernovtsy afflicted with a strange outbreak of alopecia had been sent for testing. Alas, the hopes that, at the very least, foreign experts would be able to establish the cause of the mysterious epidemic did not come true. The Canadian physicians drew an unambiguous conclusion: This was a chemical-induced disease. But which kind? This was unknown....

....April 1990. Four mines were shut down in the Donbass [Donetsk Coal Basin] because of miners being poisoned by an unknown substance. By all signs, it had migrated to the drifts from the ground surface—from the dump of a chemical plant

to which a wide variety of solid and liquid production waste had been brought for three decades. However, no specific culprit was found....

....May 1990. The graduates of School No. 108 in Sverdlovsk, who came to the Khramtsovskiy sovkhoz for weeding, felt a strange numbness in their feet. Physicians diagnosed them: poisoning by an unknown substance affecting the peripheral nervous system. One year earlier, students and employees of enterprises from Sverdlovsk assigned to the same area for agricultural work had ended up in the hospital with the same symptoms. Several individuals were granted disability benefits, but the source of the poisoning was not determined....

....June 1990. Dead starfish washed ashore en masse in the White Sea. Scientists dissected the corpses of two seals which were also carried in by the waves, and determined that they had died of a paralysis of vital centers. Why? There was no answer....

The sad enumeration of mysterious poisonings may go on for a long time. All of these accidents have one thing in common—no causes were determined. What is the reason?

Common sense suggests that only two versions of an answer are possible: Either our scientists are absolutely powerless and just not in a position adequately to monitor the ecological situation in the territory of Russia or they are deceiving us outright, concealing the true reasons for what is happening.

I set out to meet with O. Shamov, deputy chief of the Federal Directorate for Medical, Biological, and Extreme Condition Problems of the USSR Ministry of Health, in search of an answer. Quite recently, this was a highly classified establishment called the Third Main Directorate of the Ministry of Health. Medical supervision of uranium mines, enterprises of the nuclear power sector, the building and repair of nuclear vessels and submarines, nuclear explosions for peaceful purposes, missile building, and the destruction of chemical weapons are among its responsibilities.... I hoped to find solutions to many mysteries in the now declassified documents of this department. However.... Oleg Ivanovich was not able to say anything definite. He had not heard about the tragedy at the Novosibirsk chemical weapons facility; he observed that "the military gives us no reports...."

I then got in touch with the local staff correspondents of TRUD and asked them to inquire: Has anything changed in the time that has elapsed?

Yuriy Petrov (Krasnodar): "Do you remember the mass mushroom poisoning in the summer of 1991? At the time, more than 300 people were afflicted in our kray; about 40 people died. The toxicological laboratory of the kray center of the State Hygiene and Disease Control Inspectorate carried out experiments with rodents. They were injected with an extract from the suspect mushrooms. All of the subjects remained safe and sound. In the University of Kuban, a more refined analysis of the mushrooms was done at the spectral level. The results were likewise negative.

"P. Nikolayevich, chief of the department of hygiene at the kray center of the State Hygiene and Disease Control

Inspectorate, said: 'Neither pesticides nor other toxic residues or products of radioactive decay have been found. All indications are that the people were poisoned with the "blednaya poganka" toadstool, being unable to distinguish it from other mushrooms.'

"We must note that this explanation is hardly believable. Could all mushroom pickers have 'lost their sight' all at once? Why did this 'blindness' afflict people in strictly defined areas? Once again, there are questions but no answers...."

Aleksandr Petrov (Arkhangelsk): "After hundreds of thousands of dead starfish washed ashore, a commission was established. Prominent scientists and representatives of state organs and public organizations became members. There were many versions. Letters came to the oblast committee on ecology which referred to shells with chemicals which had been dumped on the seabed at one time. Perhaps their poisoned stuffing became the reason for the emergency situation. Some people pinned it on fuel which could have gotten into the sea during missile launches from submarines. Certain people altogether assured us that the simultaneous death of six million starfish is virtually a natural process. A great deal of funding was spent for research. However, the 'mountain' did not give birth to even a little mouse...."

"N. Medvedev, deputy chairman of the Arkhangelsk Committee for Environmental Protection and Natural Resources, said: 'The commission demonstrated the powerlessness of our science in such situations.'

"However, there is still another version: 'Perhaps the powerlessness of science is not the point at all, but rather the fact that those who would not like to give the real reason for the death of the starfish are still very powerful?'"

Similar ungratifying responses came from other staff correspondents, too. I thought that the article was not jelling: "Is it worthwhile to 'make noise,' given that there have been no new developments in the case?" Nonetheless, I decided, "This is precisely why it is worthwhile." After all, it is terrifying when specialists helplessly throw up their hands, being powerless to explain the illnesses and deaths of people. This means that the ecological situation is out of control. We are now unable to determine the lethal factor "X" which has landed hundreds upon hundreds of people in hospital beds. Is this to mean that unknown "Y's" and "Z's" are to be expected tomorrow with which the threat to wipe out life on earth altogether will be associated? It is good if solutions to all of these mysterious accidents are still kept somewhere in secret safes. This means that everything has not been lost yet, and that there still is hope that everything will be explained, and will not recur. It is much worse if nature has begun uncontrollably to synthesize poisonous substances which are unknown to science as a result of abundant discharges and wastes of our chemical production facilities...."

We call on all interested individuals and organizations to take part in our ecological investigation. If you know something, write to us at TRUD.

Siberia To Produce Ecologically Safe Gasoline From Coal

*LD3012171192 Moscow ITAR-TASS in English
0625 GMT 30 Dec 92*

[By ITAR-TASS correspondent Grigoriy Shalakin]

[Text] Kemerovo, December 30 (TASS)—Industrial installations capable of annually producing up to three thousand tonnes of ecologically-safe petrol from coal will be constructed close to the coal mines in Kuzbass (Southern Siberia).

The method was designed by researchers of the Siberian branch of the Russian Academy of Sciences and will be implemented into life by the "Izht Kuzbass" open joint-stock company.

CIS, German and Chinese businessmen have already displayed interest in the new industry which is to emerge in Siberia.

Omsk-Irkutsk Oil Pipeline Breaks; Large Oil Spill Reported

*LD1003093093 Moscow ITAR-TASS in English
0800 GMT 10 Mar 93*

[By ITAR-TASS correspondent Vladimir Khodiy]

[Text] Irkutsk, March 10 (TASS)—A pipe broke open in the Omsk-Irkutsk oil pipeline in the area of Tyret station of the east Siberian railway on the night of March 6 to 7.

The pipe broke open when the supply of fuel was resumed after a minor malfunction in another place. Oil spewed out for ten hours.

The pipeline was mended only by Wednesday morning, Aleksandr Kamenskiy, chief of the Civil Defence Headquarters of Irkutsk region, told ITAR-TASS.

The oil spill amounting to about 20,000 tonnes formed a huge patch with an area of more than 50 hectares. A threat of an inadvertent fire arose because a railway and a motor road run nearby. Oil can also get into the nearby Bratsk man-made lake.

Work has been started to build a series of dykes, for which about 6,000 cubic metres of land is needed. Motor traffic has been detoured to safety, and ways to collect the spill are under consideration.

Foreign Illegal Fishing Depletes Stocks in Sea of Okhotsk

*PM1203174593 Moscow ROSSIYSKAYA GAZETA
in Russian 11 Mar 93 First Edition p 4*

[Unattributed report under the "Yesterday, Today, and Tomorrow" rubric: "The Whites Are Thieving and So Are the Reds..."]

[Text] In 1992 foreign boats illegally caught more than 2 million tonnes of pollack in the central part of the Sea of Okhotsk, which is 38 percent of the Russian fishing industry's volume for this valuable maritime product.

Feliks Vinogradov, deputy chief of an administration of the Russian Fisheries Committee, reported this. "This year between 50 and 70 fishing boats under the flags of Poland, the ROK, the DPRK, and Panama have been fishing in the central part of the Sea of Okhotsk. This is undermining the stocks of pollack and seriously disturbing the ecosystem of the Sea of Okhotsk," he said.

Russia has repeatedly requested representatives of these countries to stop the irregular pollack fishing and to agree to the introduction of a voluntary moratorium on fishing in the region. "We consider that it is necessary to urgently declare the central part of the Sea of Okhotsk an ecological disaster zone and to introduce a moratorium on fishing there," Vinogradov indicated.

Krasnoyarsk To Inventory Sources of Radiation

*OW1503171793 Moscow INTERFAX in English
1416 GMT 15 Mar 93*

[Following item transmitted via KYODO]

[Text] The administration of Krasnoyarsk Territory has given instructions to inventory before April 1 the spots and facilities, where radioactive substances are mined, obtained, processed, stored or buried, and where the sources of ionizing radiation are located.

As the deputy chief of the administration, Sergey Richin, told INTERFAX, the inventory will also include the spots where underground nuclear explosions were conducted "in the interests of economic development." According to him, the inventory will be the first of this kind in Russia; it will enable the local authorities to have a full idea as to the dimensions of measures required to secure environmental protection locally. Besides, said Richin, the proposed inventory will help officials to take decisions concerning the building of new or the reconstruction of old facilities, based on the data reflecting radioactivity in the various areas of the territory.

WESTERN REGION**Belarus: Preliminary Work Begun on Nuclear Power Station**

*LD2212162292 Moscow ITAR-TASS World Service
in Russian 1259 GMT 22 Dec 92*

[By BELNFORM correspondent Yekaterina Vysotskaya - TASS]

[Text] Minsk, 22 Dec—Pre-project work has started on the construction of a Belarusian nuclear power station. This was reported today at a news conference by officers in the directorate of territorial development, architecture, and construction of the republic's Council of Ministers. One nuclear station would be sufficient for the republic on the basis of the power energy situation which Belarus is currently in. There are already two options for a site for the nuclear power station which meet all current safety requirements.

There is a huge moral problem here in connection with the tragedy of Chernobyl, which the residents of Belarus are not

going to be able to forget quickly. The proper climate of public opinion needs to be fostered for Belarusians to be sufficiently receptive to such a step.

Belarus: U.S. Agreement To Further Joint Scientific Programs

WS1103145793 Minsk Belaruskaje Television Network in Belarusian 0600 GMT 11 Mar 93

[Text] In his talk with well-known American research doctors, Belarusian Foreign Minister Petr Kravchanka called the present ecological situation in Belarus a radiation trap. The American guests arrived in Minsk to sign an agreement on scientific cooperation between the Pittsburgh University and Belarusian Science Research Institute of Radiation Medicine. This agreement foresees an exchange of specialists and internships of doctors on joint scientific programs in the United States and Belarus. Petr Kravchanka thanked the doctors for their assistance which they have been rendering to the Belarusian victims of Chernobyl disaster during the last several years. He pointed out that currently the pressing issue is to save the gene pool of the Belarusian people.

Ukraine: List of Polluting Enterprises Issued

AU1203135293 Lviv ZA VILNU UKRAYINU in Ukrainian 4 Mar 93 p 3

[Report by Vasyl Semen: "One Hundred Sources of Danger"]

[Text] For the first time in Ukraine, a list of enterprises that do particularly serious harm to the environment and human health has been compiled.

The barbaric socialist economy system transformed the wonderful region—Dnipropetrovsk Oblast—into ecological ruin. In the sick imagination of the Bolshevik Leninists, communism is not only electrification and industrialization symbolized, as it were, by a child's smiling face against the backdrop of chimneys and clouds of black smoke, but also complete chemicalization without any purifying installations or similar nonsense invented by those damned intellectuals. Here are the results: The Dnipropetrovsk Production Combine "Azot" of the "Agrokhimprom" Association (Director Oleksandr Levchenko—telephone number 7-81-33; Chief Engineer Volodymyr Fedorov—telephone number 7-81-34) poisons the city every day with substances listed as primary class dangers: phosgene, vinyl chloride, ammonia, and hydrogen chloride. The levels of pollution there have reached 10 GDK [expansion unknown], and just 41 percent of the sources of these discharges are equipped with gas-purifiers. As for the rest.... Why cannot one do without intellectualizing! Not only does the enterprise dump 27.3 million cubic meters of contaminated waste annually into our venerable Dnieper. In the dangerous zone, where no residential buildings should be allowed to remain, live 620 families. There is no need to comment on their health....

Ukraine's Dnipropetrovsk State Communal Housing Water-and-Sewage Production Administration (Director Ivan Selikhvat—telephone number 45-05-46; Chief Engineer Anatoliy Oleksiyenko—telephone number 44-41-14) does

not bother with purifying installations either: Their operations are poor, resulting in 188 million cubic meters of contaminated waste discharged annually into the Dnieper.

The Metallurgical Combine "Kryvorizhstal" of Ukraine's Ministry of Industry (Director Kostyantyn Nosov—telephone number 78-53-01; Chief Engineer Stepan Tilha—telephone number 78-53-02), while working under communism, used up 75 percent of their equipment. Independent Ukraine has received the ruins: Only 39 percent of the discharge sources are equipped with gas-purifying installations, of which 23 percent are damaged or malfunction. Annually, the combine discharges nitrogen oxides and sulfurous anhydrides into the atmosphere and millions of cubic meters of Inhulets-83 poison into the river.

One of the worst polluters of Ukraine surface water is **Ministry of Industry Dnipropetrovsk Metallurgical Plant imeni Petrovskyy** (Director Vasyl Derevyanko—telephone number 52-11-53; engineer in chief Heorhiy Kulahin—telephone number 52-63-91). It dumps 132 million cubic meters of contaminated waste into the Dnieper annually. The plant does not have a sanitary-protection zone, and people get poisoned there not only at work but also while resting at home. The fixed assets of the enterprises are 70 per cent depleted.

The Dnipropetrovsk Metallurgical Combine imeni Dzerzhinski (the town of Dniprozherzhynsk) of Ukraine's Ministry of Industry (Director Yuriy Borysov—telephone number 9-98-01; Chief Engineer Mykola Pidbereznyy—telephone number 3-98-43-02) is the second largest industrial polluter of water in Ukraine. Local water reservoirs receive 180 million cubic meters of poisoned waste annually.

The main fouler of the air in Dniprozherzhynsk with first and second class pollutants, particularly benzpyrene, phenol, and cyanides, is the **Bahliyskyy Coal-Tar Chemical Plant of Ukraine's Ministry of Industry** (Director Volt Kuzmin—telephone number 7-14-27; Chief Engineer Ivan Biloshapka—telephone number 7-43-86). Its sanitary-protection zone accommodates 115 families, despite the prohibition against human habitation. The enterprise contaminates water reservoirs and soil with its waste.

The Nikopol South Pipe-Manufacturing Plant of Ukraine's Ministry of Industry (Director Oleksandr Kutsenko—telephone number 9-31-09; Chief Engineer Valeriy Krykhta—telephone number 9-33-02) annually discharges 46 million cubic meters of contaminated waste, including petroleum products, nitrogen, nickel, chromium, and chlorides into the Kakhovka water reservoir.

The Dnipropetrovsk Coal-Tar Chemical Plant of Ukraine's Ministry of Industry (Director Volodymyr Sidohin—telephone number 52-61-25; Chief Engineer Harri Zalisko—telephone number 52-43-53) is 72 percent depleted. Besides, it is equipped with purifiers by just 33 percent. That is why the enterprise discharges particularly poisonous benzpyrene, hydrogen sulfide, and phenol into the air. Every day, 395 persons who live in the sanitary-protection zone are exposed to mortal (!) danger. Not a

single medical specialist would guarantee that this will not affect the health of new-born or future residents of the big city [Dnipropetrovsk].

The Dnieper State Regional Electric Power Plant (Director Andriy Kovpak—telephone number 95-93-50; Chief Engineer Hryhoriy Sesak—telephone number 95-93-51) is also situated within the boundary of Dnipropetrovsk and accounts for 60 percent of the total pollution in the city. The equipment at the enterprise has been depleted by 80 percent. The purifying installations do not work efficiently, and, for that reason, the discharges of anhydrides exceed 81,000 tonnes annually; 12.4 million cubic meters of various poisonous wastes flow into the Shyyanka River (a tributary of the Samara River) from overloaded biological purification installations.

Eight hundred people who live in the sanitary-protection zone of the /Kryvyy Rih Coal-Tar Chemical Plant of Ukraine's Ministry of Industry/ (Director Viktor Ivantskyy—telephone number 78-63-01; Chief Engineer Borys Lypetskyy—telephone number 78-63-01), every day, at home and at work, inhale particularly poisonous discharges, such as benzpyrene, phenol, and cyanides, because the equipment of the enterprise is depleted by 52 percent and the purifying installations do not function properly.

The Dnipropetrovsk Production Association "Dniprovshchyna" of Ukraine's Ministry of Industry (Director Vyacheslav Tyutin—telephone number 96-18-52; Chief Engineer Volodymyr Kovalenko—telephone number 96-18-52) does not even have any water purifying facilities. Nevertheless, the enterprise has been operating for some time. Moreover, it annually discharges 11 million cubic meters of contaminated waste into the Mokra Sura River. It is a brand new river, but a poisonous one. It appears that this is a normal phenomenon for us!

The same river is also being contaminated by the **Dniprozherzhynsk City Production Administration of the Water and Sewage Management subordinated to Ukraine's State Communal Housing Authority** (Director Vasyl Saychak—telephone number 3-03-01; Chief Engineer Anatoliy Ktitoro—telephone number 3-03-00). Due to the fact that the city's right-bank purifying installations are overloaded, 27 million cubic meters of poison are dumped annually into the water.

The Samara River annually receives 15 million cubic meters of contaminated waste from the **Administration of the Water-and-Sewage Management of the Production Combine "Pavlohraduhillya" subordinated to Ukraine's State Coal Industry Administration** (Director Petro Ambrosimov—telephone number 9-33-04; Chief Engineer Anatoliy Zhukovskyy—telephone number 9-32-87), because the maintenance personnel cannot ensure efficient operation of the Ternivskyy purifying installations.

The Kryvyy Rih State Regional Electric Power Plant (Director Valeriy Chebotar—telephone number 6-53-50; Chief Engineer Volodymyr Luchnykov—telephone number 6-53-51) is located 45 kilometers from Kryvyy Rih in Zelenodolsk, but is responsible for the contamination of the atmosphere and water.

Just add up all the estimated poison discharged into the water and air and tell us how this land can raise any healthy generations in the future. Then look for a way out of the tragic situation—look for it, do not sit idle!

Ukraine: South Ukrainian Power Plant 'Heading for Catastrophe'

AU1503123293 Kiev HOLOS UKRAYINY in Ukrainian 6 Mar 93 p 6

[Undated letter from Oleksandr K., operator at the South Ukrainian Atomic Electric Power Plant in Nikolayev Oblast, under the rubric "Response": "We Are Living on a Powder Keg"]

[Text] The article by O. Breus entitled "Megawatts or Security" (HOLOS UKRAYINY of 8 December 1992) discusses only one-hundredth of, to put it mildly, the shortcomings in the operation of the South Ukrainian Atomic Electric Power Plant. We operators are well aware of what is actually going on at the atomic electric power plant. Everything is leading to a catastrophe. The situation demands that all violations be investigated, because there are crimes behind them.

However, who will do it? Who is able to defeat the "atomic mafia"? If everything can be sold, who cares about simple mortals? The leadership of the plant does not deprive itself of anything and pays the operators such salaries that every one of them prefers to keep silent. Otherwise, tomorrow they might be kicked out. Meanwhile, the information department of the South Ukrainian Atomic Electric Power Plant is issuing incomplete information on incidents at the plant, concealing the most terrible thing—that we are living on a powder keg....

Ukraine: Vice Prime Minister Confirms Chernobyl To Close 1993

LD1003104693 Kiev Radio Ukraine World Service in Ukrainian 0600 GMT 10 Mar 93

[Text] The Chernobyl AES will be closed down in 1993. This decision taken by the Supreme Council in 1991 was confirmed by First Vice Prime Minister Ihor Yukhnovskyy. He proposed to create an international scientific test site in the 30 km zone. In the opinion of experts the primary task in liquidating the aftermath of the 1986 accident is the removal of ecological stresses in people. It was reported at an international conference on this problem which took place in Moscow in February that the UNESCO program envisages the creation of centers in Ukraine, Belarus, and Russia for the psychological rehabilitation of people who suffered radiation.

Ukraine: IAEA Inspectors Arrive To Check Chernobyl Nuclear Plant

*LD1703090593 Moscow ITAR-TASS in English
0618 GMT 17 Mar 93*

[By UKRINFORM correspondent Valentin Vernodubenko for TASS]

[Text] Kiev, March 17 (TASS)—A delegation of the International Atomic Energy Agency's (IAEA) guarantee department inspectors arrived on Tuesday on a technical visit to the Chernobyl nuclear power plant, the site of the world's worst nuclear disaster, the plant's department for foreign relations reported.

The delegation includes atomic industry specialists from Austria, Germany, Russia, Ukraine and Sweden. The visit is aimed to control and carry out stock-taking of nuclear materials.

The inspectors will acquaint themselves with the system of storage and stock-taking at the Chernobyl atomic station, and will demonstrate capabilities of the IAEA in organizing radiation control in reactor premises and storage facilities of the spent nuclear fuel. Possibilities of the use of radiation monitoring on ways of the spent nuclear fuel transfer will be also discussed.

The inspectors' visit will last until March 20.

CAUCASUS/CENTRAL ASIA

Azerbaijan: Radiation Situation at Oil Fields Detailed

PM2212112192 Moscow ROSSIYSKAYA GAZETA in Russian 22 Dec 92 First Edition p 7

[Report by Arif Useynov: "Radiation from the Depths of the Earth"]

[Text] Baku—This incident, which occurred to Japanese businessmen about 10 years ago, is still cited by local ecologists as proof of the threatening radiation situation in Baku.

The Japanese had not had time to come down the ramp onto the ground before they began to ask their hospitable hosts to put them on the first aircraft leaving the Azerbaijan capital. The explanation was simple: Their pocket geiger counters had gone off the scale. The incident was hushed up at the time.

On the other hand the newspapers are now bristling with headlines about the extremely unfavorable radiation situation. The city's sanitary service, having studied the territory of a number of oilfields, discovered large areas of radioactive contamination—the background there is several times higher than normal.

The situation, the sanitary service believes, arose as a result of gross violations of the rules for the operation of technological equipment and the existence of "oil lakes." Nor is effective work being performed to recultivate and decontaminate oil-polluted soil.

There is no doubt that the oil workers are working daily in polluted areas. The oil extracting enterprises in general are extremely negligent in their attitude toward the ecological protection of their facilities and particularly of their personnel in production. For instance, it has been proved that the places where "by-product" water is discharged from oilfields turn into biologically dead zones where neither plants nor animals can live. Yet this water is used by a number of industrial enterprises, subjecting their employees to high doses of radiation. Effluent from the oilfields is used by the Baku iodine plant, which leads to the mass radioactive pollution of production shops and workers' clothing.

U.S. specialists assert that the petroleum blend pumped out of the borehole up to the surface is five to 30 times more radioactive than the water which nuclear electric power stations are allowed to discharge.

Ecologists demand that attention be paid to the threatening radioactive situation in connection with the intention of a number of foreign companies to begin to develop oil and gas deposits in Azerbaijan.

Thanks to the work of such firms radiation is affecting water resources, as has already happened from Alaska to Florida. Control over the radiological situation, even for a developed country like the United States, is a problem.

The oil fever in the Caspian promise billions on profits, which will be paid for with people's health unless the situation changes radically and all states of the Caspian basin take urgent joint steps to save the region's ecology.

Kazakhstan: NATO, Russian Experts Discuss Nuclear Weapons Dismantling

PM1503144793 Moscow KRASNAYA ZVEZDA in Russian 13 Mar 93 p 2

[Report by Anatoliy Ladin: "Kazakhstan Intends Firmly To Fulfill Treaty's Terms"]

[Text] The delegation of experts from NATO and the Russian Federation Foreign Ministry center for political and international studies which is in Alma-Ata was received 12 March by Kazakhstan Deputy Defense Minister Colonel Aytkali Isengulov. The NATO guests focused their attention on questions relating to the present of strategic nuclear weapons on Kazakhstan's territory and the deadline for their destruction.

Aytkali Isengulov said that the republic's leadership states firmly and unambiguously that all deadlines mentioned in the START I Treaty, which Kazakhstan has ratified, will be fulfilled precisely. If it is a case of accelerating the process of the dismantling of nuclear missiles, then evidently, he stressed, we must also speak of increasing the size of aid to the republic to carry out the entire package of work connected with eliminating nuclear weapons on Kazakhstan's territory.

The Defense Ministry spokesman stressed that the size of aid cannot be determined merely by expenditure on the dismantling of the missiles: The ecological consequences of the presence of strategic missiles on the republic's territory and of operations to destroy them are grave. Especially as

the republic has no means to accelerate the process of the elimination of nuclear weapons on its territory. It is essential primarily to help city dwellers who have suffered as a result of nuclear tests. Therefore Kazakhstan cannot spend the funds earmarked for these purposes on the disarmament race.

BALTIC STATES

Estonia: Finland Provides Water Treatment Equipment for Tallinn, Rakvere

93WN0294A Helsinki HELSINGIN SANOMAT in Finnish
4 Feb 93 p B1

[Article by Olli Pohjanpalo: "Equipment From Lauttasaari Treatment Plant Is Shipped to Estonia"]

[Text] The installations from the Lauttasaari water treatment plant are being shipped to Tallinn and Rakvere in Estonia. At the beginning of the week a group of eight workers came to take the equipment apart and pack it onto trucks for shipment. Water treatment in Tallinn has included mechanical and chemical processes but has lacked biological purification. The situation will probably improve when the equipment has been received on the south side of the Gulf of Finland.

"By the end of this year the equipment will be in place, training will proceed for a few months, and within about a year biological treatment will be in operation," said Mati Perker, a leading engineer from the Tallinn water and sewage works.

The dismantling work began on Wednesday [3 February]. Nearly all of the movable goods at the treatment plant are being consigned. Only the walls, the basins, and the sites' own heating, lighting, and air-conditioning systems will remain where they are. In all, 25-30 truckloads of freight will move from Lauttasaari to Estonia.

Perker gave assurances that everything would find a use somewhere. This is also a requirement of the Finnish Environmental Ministry, which funded the project.

The work, which will last all spring, is being done under the supervision and guidance of the YIT group. Helsinki, as owner of the treatment plant, will pay YIT compensation for the dismantling work. The Environmental Ministry in turn will pay Helsinki so much for the equipment and dismantling operations that the city will clear 2 million markkas after the compensation to YIT is paid. The Estonians will not pay a penny for the equipment. The Environmental Ministry has considered it best to take the lead here in the name of the common interest of the Gulf of Finland.

The Munkkisaari treatment plant, which was taken out of service in 1991, has already been sent from Helsinki to Estonia with the support of the Environmental Ministry. An attempt will be made to continue the same procedure with regard to the Kylasaari, Viiki, and Vuosaari equipment, when these are idled after the Viikimaki central treatment plant is finished in 1994.

Esko Hevonoja, a department head in the water and sewage works, said that Tallinn still needs to expand its treatment facilities. "There is also interest in other Baltic cities, and in St. Petersburg there are all kinds of possibilities for placing this equipment."

Water Quality Will Improve Near Helsinki Too

Closing the small water treatment plants will improve the condition of the seawater near Helsinki, when the stress on nearby waters is terminated. The giant treatment plant that is to open in Viikinmaki next year will send all the wastewater far out into the open sea. Water from the Lauttasaari treatment plant is poured into the sea behind Lauttasaari only a few hundred meters from the shore.

The first water treatment plants were built in Helsinki back in the 1910's. At their peak in the 1970's there were 11 treatment plants in various parts of Helsinki.

The Lauttasaari treatment plant was completed in 1962, but its equipment was renovated in 1977. The equipment is 15 years old, but according to Hevonoja it can last another term if good care is taken of it. The city of Helsinki has no use for the equipment, because it is much too small for Viikinmaki. Wastewater that used to come to the Lauttasaari treatment plant was redirected to the Kylasaari treatment plant in the middle of December.

In due time apartment houses will be built on the site of the Lauttasaari treatment plant. The plant building may be razed in fall, when the Estonians have shipped the equipment from the basin.

Estonia: Dismantling of Reactors at Paldiski To Cost \$1.5 Million

WS1103104593 Tallinn BNS in English
1937 GMT 10 Mar 93

[Text] Tallinn, 10 March 1993 (BNS)—The dismantling of two nuclear reactors at an ex-Soviet submariners' training base in Paldiski will cost about 1.5 million U.S. dollars, a Russian expert said at a meeting at the Estonian Environment Ministry. ,

Vyacheslav Perovskiy, chief expert in a Russian team working on the project for dismantling the reactors and restoring the polluted areas, said that the intended capacity of the projecting work is 150 man-years, and of the actual work on the reactors, 300 man-years.

Although the Russian government has allocated money for the projecting work, the project still lacks actual covering.

The so-called Paldiski commission with the Estonian ministry assessed the plan as viable and characterized a preliminary draft provided by the Russian team as most realistic.

The commission analyzed two alternative options for dismantling of the reactors. The first scheme says the polluted objects would be taken out from Paldiski, leaving only the reactor building and the surrounding infrastructure that can be used for industrial purposes. The second scheme foresees the building of a so-called "sarcophagus", similar to what was built in Chernobyl, around the reactors.

Although the second scheme is easier to implement and would take less time, the meeting advised to use the first option, which also requires major repairs on the railway branch to Pladiski.

Under either option, about 600 kg of nuclear fuel must be first transported to Russia.

There are two training nuclear reactors at the submarine crews training centre in Paldiski some 35 km west of Tallinn. Russia in December gave up plans to again use the reactors and declared that its experts had made it technically impossible to restart the reactors. The Estonian commission said it is necessary to check the claim over.

Lithuania: Computer-Aided Warning System To Monitor Ignalina Radiation

*OW1103183693 Moscow BALTFAX in English
1725 GMT 11 Mar 93*

[Following item transmitted via KYODO]

[Text] A computer-aided radiation monitoring and early warning system will be set up in Lithuania in 1993-94 by a government decision.

The system will continuously monitor radiation pollution and forecast the disposal of wastes from the Ignalina nuclear power station into the atmosphere. It will also be helpful in putting to efficient use the western aid made available for improvement of nuclear power capabilities and integration of Lithuania into international information exchange systems. The system will be designed by a project team of scientists and engineers and evaluated by the German Ministry of Nature Protection and Security of Nuclear Reactors.

No comparable system is available in the former USSR and is expected to be more sophisticated than any European systems of this kind.

The design will cost the Environment Protection Department of Lithuania about 4,000,000 temporary currency units and the system construction, about \$4 mn [million]. Lithuanian experts hope that most equipment will be delivered either on easy terms or as a gift from Scandinavian and West European countries which want to have such a system installed in Lithuania.

REGIONAL AFFAIRS

EC's Environmental Policy Too Costly for Results

93WN0186A Milan MONDO ECONOMICO in Italian
12 Dec pp 38-39

[Article by Cristina Rapisarda Sassoon: "Too Much Money; Few Results"]

[Text] Even the EEC is becoming convinced of it. The outlay for environmentalist policies is excessive in comparison with the tangible results obtained. And the body of legislation often seems complex and hard to apply. Thus, Delors proposed a return to a greater national independence in regulations.

The environment costs too much. After 20 years of continued growth in European environmental regulations, that is the conclusion they are reaching at Brussels on the basis of national accounts and the Community environment budget. Appropriations that are too high, regulations that are too complicated, meager results. Jacques Delors, himself, president of the Commission, defined the situation as unbearable, and at this point it is fated to change very quickly.

Until now, the way has been rapid and fruitful, if one considers that more than 200 Community legislative acts on the subjects of pollution, waste management, control of chemical substances, evaluation of environmental impact, and protection of nature, have been approved since 1972, the year EEC environmental policy started out, after the first concentrated attention to the environmental question by chiefs of state and of governments meeting at the Paris summit. That is a wealth of regulatory production. It also had its effects in the field of international agreements. In fact, it suffices to recall that, while between 1948 and 1970, governments signed only nine international treaties, mainly in the sector of petroleum pollution, from 1970 until now no less than 32 international treaties and 13 European conventions were signed.

It is just that large legislative production that is now coming back like a boomerang against the concrete prospects of implementing the EEC's environmental policy. In fact, in reckoning up the accounts, the cost of adapting to the standards of environmental compatibility fixed at EEC headquarters turned out to be too high in some sectors, enough to make it clear it was impossible for some member states to bear it. And, with the current climate of economic recession, enough to justify a certain reluctance toward adaptation, even on the part of those states that, potentially at least, could cope with it. Specifically, according to most recent EEC Commission estimates, the annual outlay for environment would have reached around 45 billion ECU (58 trillion lire), not including measures inherent in nuclear energy production and water management.

Water

One must certainly not underestimate the fact that the item water, itself, constitutes one of the principal thorns in the side of Community environmental policy. Member states complain of overly severe standards, especially the directives establishing the quality levels for water destined for human consumption, beginning in 1980. In fact these norms

require the total absence of lead, pesticides, nitrates, and bacteria, even if it has not been proved that small concentrations of these substances do constitute a real risk factor for human health. Other rules, aimed at the mere improvement of the color of water, have been added to these, without any concrete effect, even in terms of safety. British water companies have estimated that the investments needed for full implementation of the EEC directives amount to around 45 billion sterling (around 90 trillion lire) and furthermore, it is not certain that this can ensure an effective improvement in current water conditions.

Thus, one has too many regulations, too much strictness, with an almost total lack of forecasting of costs that would be needed for applying the regulations. One must wonder why we are at this point today, considering that there is a genuine impasse, especially with the fall-out that Community production of regulations causes at the national level. Indeed, above the national level, the excess of regulation is expressed in a similar superabundance of legislation, principally in countries where legislation emerges and develops in observance of Community obligations, as in the case of Italy, with extremely negative consequences in terms of certainty and rational application.

The answer lies in the fact that, until the end of the 1980's, Community environmental policy reflected the idea that the system of controls and safety measures should tend to satisfy environmental interests exclusively without taking economic interests into consideration, and, indeed, at least in the initial phase, even to the detriment of economic interests.

Karen van Miert, EEC commissioner for environment, confirmed this when called on to explain the primary objective of the Community directives on the subject of water pollution, as conceived until now. It is to safeguard human health and prevent illnesses, without consideration of the possible costs and benefits of the protective measures introduced.

The result is that Europe is operating at two speeds for the environment as well. On the one hand, there are in fact the states such as Germany, Holland, and Denmark that maintain first place in the observation of regulations, and, on the other hand, there are the poorer states, such as Greece, Spain, Portugal, and, in some sectors, also Italy, that do not manage to keep up with the regulations. And to think that, even at the beginning, one of the fundamental aims of Community environmental policy was avoiding distortions in the operation of the common market caused by the possible presence of products with environmental compatibility characteristics that were not uniform!

The problem probably arose from the fact that in developing the objective of uniformity, the ecological spirit of the Nordic countries ended up by prevailing, particularly under the influence of a public opinion ever more favorable to that approach, and of a substantial convergence of views on this point between the environmental ministers representing the various member states.

Thus, what should be done to break the impasse? Could one perhaps retreat, with the conviction that protection of the environment costs too much in a situation of economic crisis? That is what president Delors seems to be proposing, dusting off the principle of subsidiarity, he suggested abrogating a couple of dozen directives, even including the ones on waters for swimming and bathing, in addition to waters for human consumption, allowing member states to be free to determine environmental quality standards in these fields independently. But as can be seen, it is a partial solution, and does not favor uniformity; and, above all, it does not take into consideration the fact that precisely because of the widespread regulations introduced in the last 20 years, the environmental question now is an integral part of the choices in the economic and social fields.

The Solution

The solution is found in the fifth EEC action program in the environmental field, already approved by the Commission and awaiting final approval by the end of 1992 with a resolution by the Council of Ministers. It consists of abandoning the concept of exclusive protection of environmental interests and attempting a complete and definitive reconciliation between economy and environment. In fact, the

primary objective of the fifth EEC program is to combine the safeguarding the environment with growth and competitiveness of the economic system.

The change is truly decisive with respect to preceding programs. In fact, there is under way an evolution from an environmental policy conceived of as a restriction on the economy, typical of the first three programs, to a policy that first becomes a stimulus, with the fourth program still under preparation; and now, with the fifth, the condition of economic development itself. It is a change bringing some very important consequences: Partial deregulation; introduction of a mixed system of traditional authorizing controls and of economic instruments capable of incorporating the rules of the market into the measures for environmental protection; recognition of the beginning of self-responsibilization of plants; and encouragement of forms of negotiation between the public and private sectors.

In a word, the rules of the game must change on the environmental front. The way has already been shown and it passes by way of a renewed and intense dialog between economy and environment. But it should be clear to all that it is a way characterized by great complexity: The problem will be how to manage it.

This Is How the EEC Spends

	Expenditures for environment in billions of ECU ¹	Expenditures for environment in percent of GNP	Percentage level of implementation of EEC directives
Belgium	na	na	81
Luxemburg	na	na	86
Denmark	1.0	1.1	98
Germany	16.5	1.6	92
Greece	na	na	76
Spain	1.8	0.6	93
France	8.3	1.0	89
Ireland	0.3	1.0	84
Italy	5.7	0.8	59
Holland	2.7	1.4	95
Portugal	0.3	0.8	94
Great Britain	8.7	1.2	85
Total	45.3 ²	1.2 ²	86

¹Safety measures inherent in nuclear production and for water management are excluded.

²Excluding Belgium, Luxemburg, and Greece

Source: *The State of the Environment in the European Community, Vol. 3, Brussels, March 1992.*

EC Drafts Computer Recycling Regulation

BR1703093393 Amsterdam COMPUTABLE in Dutch
29 Jan 93 p 3

[Article signed J.N.: "EC Elaborates Regulation for Computer Recycling"]

[Text] Brussels—The European Commission is considering introducing a regulation which will compel manufacturers of automation and electronic equipment to recycle their products.

Next month a trial program for the return and reuse of electronic products will begin, organized by the Italian Government. The results, according to Brussels circles, will have a very strong effect on any regulation covering the whole Community. Thus far the interests of the EC in this area have been limited to the reuse of packaging materials.

High Priority

"The recycling project is at this moment at the definition stage. The trial will provide information on the most efficient ways to reuse or dispose of electrical and electronic

equipment such as computers," explained an EC Commission spokesperson. "The Commission has now recognized that these types of waste products must be given high priority."

An EC regulation is considered necessary to prevent member states from choosing their own individual solution. Such a lack of uniformity has already produced problems with the existing regulation regarding the packaging of, for instance, software packages. The rigid German approach is being interpreted by the other states as a hindrance to free trade.

Not only the Italians are testing the recycling of information technology and other electronic products. Discussions are also being held in the German Parliament about the processing of this sort of waste flow. A spokesperson for the German pressure group VDMA [Association of German Equipment Manufacturers] said when asked that he expects electronic products to be completely recyclable by 1994. "A number of businesses are already operating a collection system. Consumers and buyers are still paying for that now. The proposal being examined says that industry, that is manufacturers, dealers, and importers, will have to pay for the collection."

A similar approach is also being prepared in France. In the Netherlands it was announced not long ago that IBM, Digital Equipment, and the Philips subsidiary MIRC [expansion not given] are expanding activities for the reclamation of plastics, metals, components, and similar items from hardware which is no longer being used.

GERMANY

Experimental Project Using Parallel Computers To Analyze Smog

93MI0328 Bonn WISSENSCHAFT WIRTSCHAFT POLITIK in German 13 Jan 93 p 4

[Text] A large-scale pilot experiment is currently being performed to find out whether parallel computers can be used to analyze and forecast the spread of atmospheric pollutants.

The simulation results obtained to date are being processed by the environment authority responsible for the Berlin area with a view to achieving what is termed in technical jargon "smog management."

The "dynamic smog analysis and forecasting models" project, which Professor Achim Sydow is leading at the Society for Mathematics and Data Processing (GMD, headquarters in St. Augustin) Institute of Computer Architecture and Software Engineering in Berlin, comprises several aspects.

Information on the topography of the territory concerned, the use to which the land is put, and the industrial, domestic heating fuel, and traffic distribution is stored in a database.

Grid Over the City

The wind, temperature, and humidity distribution are determined in a meteorological model with reference to grid

points positioned over the area. This model is coupled to what is known as an air chemistry model, in which the mechanisms involved in the reactions between about 100 components are acted out. The interaction between the two models provides information as to the pollutant concentrations both before and after transport in the air, and "thick air" paths are predicted or traced.

The maps thus obtained with the territorial coordinates of the Greater Berlin area provide a precise picture of, for instance, the sulfur dioxide concentration in the lower air layers (from 0 to 50 m) and its probable "migration" through the city.

Mass of Data Requires Parallel Computers

From the outset, parallel processing strategies were central to the implementation of the simulation system in Berlin; indeed, Professor Sydow is responsible for research on applications for parallel computers. Many other organizations, from Parsytec GmbH of Aachen and Chemnitz to the Russian Academy of Sciences Physics Institute in Moscow are also involved.

Process To Measure Steel Corrosion Developed

93MI0340 Bonn DIE WELT in German 11 Feb 93 p 7

[Text] Scientists at the North-Rhine Westphalia College of Technology (RWTH) in Aachen, with support from the German Research Association (DFG), have developed a process for continuous steel corrosion monitoring. The measurement principle exploits the fact that iron ions are dissolved at the rusty points on the steel surface. This in turn releases electrons. These excess electrons react on the surrounding steel surface with oxygen and water, and the corrosion rate can thus be measured as electrical current.

A steel frame is normally embedded in a cement and sand mixture to protect it against corrosion. The cement keeps the moisture in the pores alkaline, but air can penetrate, and its carbon dioxide content can form an acid, whereupon the steel reacts with the moisture in the atmospheric oxygen and begins to rust. Salt spray and sea water can also attack concrete.

The concrete surround must be as large as possible if it is to prevent the concrete in buildings from cracking or even chipping. The scientists in Aachen also recommend that the concrete be slightly permeable to, and bond readily with, chlorine salts.

However, this requires a very low water to cement ratio. After extensive laboratory tests, sensors that monitor the corrosion hazard on a continuous basis, and can be embedded directly into the concrete in new buildings, have been developed.

Topfer, Romania's Melescanu Stress Environment Protection

AU1103173093 Bucharest ROMPRES in English 1608 GMT 11 Mar 93

[Text] Bonn, ROMPRES 11/3/1993—Romanian Foreign Minister Teodor Melescanu started an official visit to Germany as guest of Klaus Kinkel, federal foreign minister, on March 11.

The Romanian minister met in the morning in Bonn the Federal Minister of the Environment Klaus Topfer. At the close of the interview, the Romanian chief diplomat assessed the talk as "exquisite and encouraging" because the German minister confirmed his government's decision to directly get involved and take care of the bringing back to Germany of the toxic wastes smuggled into Romania. Another theme discussed was bilateral cooperation in other domains as well, for instance the production of nuclear and classical energy with special stress on environmental protection, of the Danube more particularly.

In turn, Minister Klaus Topfer said that during his forthcoming Romanian visit an agreement of cooperation will be signed on environmental protection between the Romanian and German Governments. An important part of the agreement would include measures to avert situations similar to the waste affair.

Foreign minister Teodor Melescanu met then at the Romanian Embassy with the chairmen of the Associations of Saxons and Swabians of Romanian extraction. They discussed problems of German ethnics, the way how the respective associations could participate in various projects of assistance to Saxons and Swabians living in Romania as well as in actions meant to offer a true-to-life image of Romania in Germany. The talks also covered problems of preparation of the joint Romanian-German Government session on German ethnics due to take place in Bucharest on April 5-7.

ITALY

Government Names Valdo Spini as Environment Minister

AU0903203493 Paris AFP in English 2003 GMT 9 Mar 93

[Text] Rome, March 9 (AFP)—The government Tuesday [9 March] named socialist Valdo Spini as environment minister to replace Carlo Ripa Di Meana, who resigned Sunday [7 March] over a controversial decree on party funding.

Ripa Di Meana resigned to protest a controversial decree passed Friday which would have decriminalised many cases of illicit funding of political parties.

Hours after he resigned, President Oscar Luigi Scalfaro refused to sign the decree, which was eventually withdrawn by ministers Tuesday.

Spini, 47, was undersecretary for foreign affairs in the present government, after having been undersecretary for domestic affairs in the previous government of Giulio Andreotti.

A native of Florence, he was deputy leader of the Socialist Party from 1981 to 1984.

In separate developments Tuesday, the former head of the Italian motorway company ANAS, Antonio Crespo, was arrested, police said.

Crespo, who police had been seeking for several weeks in connection with a corruption case, was arrested as he arrived from Paris at Rome-Fiumicino airport, police said.

Three arrest warrants had been issued against Crespo, alleging that he accepted a total of a billion lira (700,000 dollars) in illicit payments in connection with road contracts in various parts of the country.

Also Tuesday, Enzo Carra, spokesman for the former Christian Democrat leader Arnaldo Forlani was jailed for two years in Milan for giving false evidence to a corruption investigation.

UNITED KINGDOM

Science Council Approves Grants To Study Atmosphere

BR1903122293 London HERMES Database in English
24 Feb 93

[UK press release No. 03:93 from the Science and Engineering Research Council: "News From Council - January 1993—New Director Observatories Appointment"]

[Excerpts] [passage omitted] Go Ahead for UK Role in Polar Cap Radar

A UK contribution of 1.8 million pounds for a new radar to study the earth's atmosphere at high latitudes was given the go-ahead by SERC (Science and Engineering Research Council). The EISCAT Svalbard Radar (ESR), to be based in Norway, is scheduled to start operating in 1995.

ESR will mainly provide insights into the complex processes in the earth's tropopause and the atmosphere above, including atmosphere-solar wind coupling. It will also contribute information on the dynamics and structure of other parts of the atmosphere and the behaviour of phenomena such as the Polar Vortex and arctic ozone depletion.

EISCAT is an association of six nations - Norway, Sweden, Finland, Germany France and UK. ESR will open up opportunities for correlated observations with the European Space Agency Cluster mission due to be launched in 1996.

Radioactive Nuclear Beam Test-Bed Facility

A 1.68 million-pound project to build a radioactive beam ion-source test-bed facility on the Isis spallation neutron source at the SERC Rutherford Appleton Laboratory by 1994 was approved by the Council.

An investigation of types of possible research facilities for the future, commissioned by SERC, concluded that radioactive nuclear beams offered the best option for developing future research tools; this matched a similar conclusion by the European co-ordinating committee for nuclear physics, NuPECC.

In addition to providing fundamental knowledge of the nuclei and nuclear astrophysics, the test-bed facility will make possible work related to non-nuclear work on, for example, materials engineering, medical imaging and surface impurities. [passage omitted]

Review of SERC-Industry Interaction

A review of SERC's interactions with industry, initiated by SERC's 1990 Corporate Plan and carried out by the SERC Industrial Affairs Panel, was discussed by Council.

Specific recommendations from the review were:

—SERC should use the current DTI [Department of Trade and Industry] investigation of their interactions with the Research Councils as an opportunity to clarify the individual roles of the two organisations, building on their respective strengths and experience. Consideration should be given, primarily by the Engineering Board, to the merging of the Engineering Doctorate, the IRO Studentships, CASE in engineering, and Total Technology into a single Industrial Training Studentships scheme. SERC should initiate negotiations with DTI with the objective of DTI assuming the larger role in the Teaching Company Scheme. SERC Boards and committees could then use the Teaching Company mechanism where peer review bodies felt it was appropriate. Grant Applications should, where appropriate, provide greater detail on plans

for exploitation, including explanations of how intellectual property will be identified and protected. It should be a condition on awarded grants that final reports should describe detailed arrangements for exploitation and protection of intellectual property. SERC should sponsor a pilot Business Awareness course for academics. In discussions with DTI and other LINK partners through the LINK Steering Group, SERC should seek further simplification of LINK rules and procedures - and use LINK as the principal funding route to pursue academic-industrial research.

Copies of the review will be available from Mrs K Bartoszewska, Room 1134, SERC, Polaris House, North Star Avenue, Swindon SN2 1ET, in March 1993. [passage omitted]

New Research Grants

A 1.2 million-pound grant for research to study the origin of cosmic radiation was awarded to Durham University (Professor K E Turner). Nottingham University (Professor L J Challis) were awarded 1.2 million pounds by the SERC Materials Commission for phonon studies.

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